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TOWARD THE NEXT GENERATION OF FARM POLICY

A STAFF STUDY

PREPARED FOR THE USE OF THE

JOINT ECONOMIC COMMITTEE

AND THE

SUBCOMMITTEE ON AGRICULTURE AND TRANSPORTATION

OF THE

JOINT ECONOMIC COMMITTEE CONGRESS OF THE UNITED STATES

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LETTER OF TRANSMITTAL

DECEMBER 1, 1983.

To the Members of the Joint Economic Committee:

Transmitted herewith is a staff study on the subject, "Toward the Next Generation of Farm Policy." This staff study draws extensively from 24 hearings, including five regional hearings, conducted during the last two years by the Joint Economic Committee and its Agriculture and Transportation Subcommittee, and independent staff research.

The study was prepared by Dr. Robert J. Tosterud, Senior Economist, and Dale Jahr, Economist, on the staff of the Joint Economic Committee. Mike Neruda of Senator Jepsen's staff, Ken Nelson of Congressman Hamilton's staff, Steve Censky of Senator Abdnor's staff, Lisa Lausier of Congresswoman Snowe's staff, and Ann Canfield of Senator Symms' staff reviewed drafts of the study and made valuable contributions. The authors were assisted by Dawn Delves and Pamela Reynolds who typed the manuscript. In addition, Dawn Delves provided substantial assistance throughout the hearing process.

The study relates the changing structure of U.S. agriculture and the importance of this vital industry to the U.S. economy. The study documents recent developments and key issues in farm policy and derives conclusions relative to the next generation of farm policy.

Because of the wide diversity of the views expressed and farm policy options discussed in this study, such views and options are not necessarily those of the Joint Economic Committee nor its individual members.

ROGER W. JEPSEN,
Chairman, Joint Economic Committee.

JAMES ABDNOR,
Chairman, Subcommittee on Agriculture and Transportation.

FOREWORD

Agriculture in the United States is confronted with the consequences of a combination of unprecedented and unpredictable political, economic and climatic events. The interaction of these elements in 1983 likely will have a dramatic influence on the public's perception of American agriculture, and therefore may affect the direction, type and magnitude of public support for the farm sector. Seldom have the interests of nonfarmers in farm policy development been so clearly evident. Rarely has their attention been as pronounced, also. As a result the news media has given agriculture considerable exposure and prominence recently.

Today the farmer is but one participant in the discussion of agricultural policy. Other points of view are voiced by the taxpayer, politician and consumer. Farm price- and income-support programs have increased five-fold in cost in the past two years, arousing the ire of taxpayers. Since these added costs compete fiercely with other federally funded programs and occur during a time of record-high deficits, politicians are exposed to increased pressures of pleasing the public. Because 1983's massive supply-reduction program was accompanied by an unexpected drought and severe heatwave, grain surpluses will be lower than projected. Food prices are expected to rise, prompting consumer concern. Finally, farmers face the likelihood of a fourth consecutive year of depressed income which will decrease their confidence in Federal assistance programs and further erode their financial condition.

Future farm policy will be determined largely by those having control over the policymaking agenda. Consumers, taxpayers, politicians and farmers together will form an array of programs to ensure the vitality of the food sector. Clearly farmers are not only outnumbered, but also represent only a small share of total food costs. Consumers traditionally have been the prime beneficiaries of American agriculture through the abundance of food available at reasonable costs. Only in recent times have farm programs become a costly burden on taxpayers, caused by the price-deflating effects of consecutive years of record harvests during a time of lackluster export demand. And politicians face the perennial problem of forging a balanced compromise which serves the public interest adequately. Because of dramatic changes in the agricultural, domestic and international economies, the farm policy agenda will be an ambitious one, certainly challenging traditional farm policies and perhaps resulting in a radical departure from the status quo.

In September 1981, the Subcommittee on Agriculture and Transportation of the Joint Economic Committee began its inquiry into the economic condition and prospects of American agriculture. During the last 27 months the Subcommittee and the full Committee have conducted 23 public hearings, including five regional hearings. This investigation began with four hearings addressing the

topic, "The Importance of Agriculture to the U.S. Economy," followed in March 1982 by six hearings focused on "The Changing Economics of Agriculture." The Committee recently conducted a series of 13 hearings, including five regional field hearings, at which over 100 witnesses expressed their view on the subject, "Toward the Next Generation of Farm Policy." In addition to those which we chaired, Senator Symms, Congressman Hamilton and Congresswoman Snowe chaired regional field hearings of the full Committee.

This report draws upon many of the concerns, ideas and efforts of the hundreds of witnesses who have appeared before the Joint Economic Committee during the last two years and also utilizes outside resources. It is hoped that this report will serve as a useful and constructive contribution as the public begins its deliberations and proceeds in the formulation of the next generation of farm policy.

In addition to the hearings and now this second staff study on agricultural economics and policy, the Joint Economic Committee is responsible for the preparation of farm policy studies by the Council for Agricultural Science and Technology (CAST), the Congressional Budget Office (CBO) and the Office of Technology Assessment (OTA). The first of two CAST reports dealing with farm policy options is included as an appendix to this study. A second CAST report will address new agricultural production and processing technologies. The CBO is concentrating on Federal budget implications of alternative farm programs. The OTA study focuses on technology, public policy, and the changing structure of American agriculture.

The Joint Economic Committee has facilitated other agricultural policy initiatives. In particular, it has been an active participant in policy studies by the National Agricultural Forum. This study group is preparing two major reports dealing with international trade and domestic farm programs.

ROGER W. JEPSEN,
Chairman, Joint Economic Committee.
JAMES ABDNOR,
Chairman, Subcommittee on Agriculture and Transportation.

CONTENTS

	Page
Letter of Transmittal	III
Foreword	V
I. The Importance of Agriculture to the U.S. Economy	1
II. The Changing Structure of Agriculture	3
Historical Perspective	3
Farm Economic and Demographic Trends	6
National and International Economic Influences	13
III. 1982: The End of a Farm Policy Era?	20
IV. 1983: Farm Policy in Transition	22
V. Toward the Next Generation of Farm Policy: A Summary of Key Issues	25
Farm Price Protection, Income Maintenance and Supply Control	26
International Trade	26
Conservation	27
Credit	27
Agricultural Research	28
Small Scale and Specialty Farming	28
VI. Choices in Farm Policy	30
A Free Agriculture	30
Revenue Insurance	31
Income Insurance	33
Tax Credit Sector Income Support Program	34
A More Market-Oriented Agriculture	35
Demand Enhancement	36
Mandatory Government Controls	36
A Centrally Planned Agriculture	37
VII. Conclusions	38
Appendix. "The Emerging Economics of Agriculture: Review and Policy Options," report of the Council for Agricultural Science and Technology	43

I. THE IMPORTANCE OF AGRICULTURE TO THE U.S. ECONOMY

> Burn down your cities and leave our farms,
> and your cities will spring up again
> as if by magic, but destroy our farms
> and grass will grow in the streets of every city.
> WM. JENNINGS BRYAN, 1895

The food and agricultural system of the United States as an industry accounts for over 22 percent of U.S. employment and over 20 percent of this country's Gross National Product. The efforts of approximately 3.4 million people directly employed in farming—production agriculture—creates an additional 20 million jobs: 1.7 million in food processing, 2.5 million in resource supplies, 5.0 million in manufacturing, 7.6 million in transportation, wholesaling and retailing, and 3.3 million in eating establishments. Assets devoted to agriculture amounted to nearly one trillion dollars. That figure is equal to almost 90 percent of the combined total assets of all manufacturing firms in the United States. The value of farm assets, through our economic system, makes agriculture and the food and fiber system this nation's largest industry and employer.

The food and fiber sector produced about $529 billion worth of goods in 1982, consisting of $298 billion in consumer purchases of domestically produced food, $37 billion of agricultural exports, $118 billion of clothes and shoes, and $24 billion of tobacco. The initial sale of $84 billion of raw agricultural commodities yielded $529 billion worth of goods for the U.S. economy, or better than six dollars are generated for every dollar created by production agriculture.

Farmers also are substantial purchasers of goods and services. Farmers purchased $105 billion of inputs in 1982, $74 billion of which were of non-farm origin.

Because of farming's extreme productivity in the use of inputs, substantial amounts of resources—land, labor and capital—are freed to be employed in the production of other goods and services. Farm productivity increased 12 percent in 1981 spurred by higher output and the same input level.

U.S. consumer expenditures for all food, including imported food, amounted to about $350 billion in 1982 or 16.1 percent of disposable income. Compared to previous years, this represented a reduced share. The share was 16.3 percent ten years ago, and 19.1 percent 20 years ago, indicating that the relative burden of food on the family budget is lessening. While even 16.1 percent may seem large, it is much less than the share of personal income accounted for by food in the United Kingdom, France, Japan and virtually all other developed countries. In addition, the quality, nutritional value, and variety of food available to U.S. consumers is unmatched anywhere else in the world. The tremendous growth in productivity of the U.S. agricultural system freed billions of dollars

32-114 O—84——2

of consumer income for the purchase of other goods, savings and investment. If Americans had devoted 20 percent of personal income to food purchases in 1982, $89 billion more would have been spent on food and therefore not on the products and services supplied by other industries.

Food prices have contributed significantly to recent dramatic declines in the rate of inflation. The limited increase of 2 percent in prices received by farmers for farm foods in 1982 kept the increase in prices paid by consumers for food in grocery stores down to only 3.4 percent, the smallest increase since 1976. The consumer price index for food (food consumed at home and away-from-home) increased 4 percent in 1982, the third consecutive year of slowing retail food price rises.

In response to increased world demand for U.S. farm commodities, expanded agricultural exports have had an enormous impact on the U.S. economy. Farm commodity exports represent about one-third of total U.S. cropland production, indicating farmers' high dependence on foreign markets. The value of agricultural exports in 1982 (fiscal year) was $39.1 billion. Subtracting the $15.3 billion value of imported agricultural products, the United States had an agricultural trade balance surplus of almost $23.8 billion in 1982. The United States had a nonagricultural trade balance deficit of $57.2 billion in 1982. In recent years agricultural exports have covered over one-half the cost of imported petroleum and petroleum products. In addition, the Department of Agriculture estimates that a one million dollar export sale of wheat, for example, generates almost $5.5 million of direct, indirect and induced business activity in the U.S. economy.

Being the world's leading agricultural nation has provided the United States with a powerful political, as well as economic, leverage in international relations. In addition to $39 billion of commercial sales, U.S. farmers, through their government, contribute greatly to world food security—the assurance of regular and adequate food supplies for a significant portion of the world's population. The United States is the largest donor of food aid in the world, which is achieved in part through its Public Law 480 donor program and by being the largest contributor to the United Nations World Food Program and the International Emergency Food Reserve. In addition, U.S. participation in export credits, the International Monetary Fund and the World Bank helps to facilitate financial arrangements to promote food consumption and distribution.

The United States further enhances world food security by maintaining at its own expense adequate national and global stocks to meet inherent year-to-year fluctuations in grain production. The United States, in fact, is the only nation with an intentional policy of holding carryover grain reserves in order to meet international and domestic needs. In addition, the United States has comprehensive programs designed to assist developing countries in increasing their domestic food production. The actual and potential manipulation of commercial agricultural sales by the Federal Government to pursue foreign policy objectives, while certainly controversial, is nonetheless another attribute and contribution of U.S. agriculture.

II. THE CHANGING STRUCTURE OF AGRICULTURE

Historical Perspective

For the better part of two centuries "dirt farmers" were instrumental in setting the economic and political agendas of this country. Only since the 1920 census have urban residents outnumbered rural residents. In fact, the production of food and fiber beyond subsistence levels made industrialization and urbanization possible. It should not be an incidental note in world history that the most food productive land on the face of the Earth was placed in the hands of the most capable, enterprising and innovative individuals. The third essential ingredient was that these individuals were provided an economic system which rewarded initiative, hard work, and risktaking. The American farmers' phenomenal success set the standard for industrial achievement, created the potential for diverting human resources into new capabilities, and fostered the confidence and desire to attain greatness.

During the second century of American history farmers took full advantage of their dominant status and pursued on every front their economic, political and social interests. The emerging and growing nation, still proud and respectful of its agrarian heritage, was more than eager to accommodate. Unique institutions were established to serve the needs of agriculture, including a cabinet level Department of Agriculture, a land grant college system including its network of agricultural experiment stations and extension services, rural electrification and telephone administrations, a farm credit system, bureaus to address reclamation problems and public road construction, and dozens of others. In addition, countless legal preferences and exemptions in the interest of agriculture: priority rights to land and water, the Homestead Act, price and income supports, subsidized credit, exemptions from Federal taxes—including Social Security, child labor laws, price controls, antitrust laws for their cooperatively owned businesses, and even the military draft.

Owing to supportive public sentiment, the political strength bestowed upon the agricultural community can be attributed to its perceived uniqueness and worthiness and its actual economic prominence. Professor Don Parlberg of Purdue University wrote an "Agricultural Creed" that aptly describes the public infatuation with farming:

> Farmers are good citizens and a high percentage of our population should be on farms.
> Farming is not only a business but a way of life.
> Farming should be a family enterprise.
> The land should be owned by the man who tills it.

It is good to "make two blades of grass grow where only one grew before."
Anyone who wants to farm should be free to do so.
A farmer should be his own boss.

While it is difficult to say when this creed became more patronizing rhetoric than gospel, its message depicted a full century of public attitude.

The agricultural sector experienced its most prolonged period of prosperity from about 1910 until 1930. World War I created a pronounced world demand for food and the general U.S. economic expansion that followed the war sustained the vitality of the agricultural sector. However, as America's demography changed, agriculture's prominence began to wane. Agriculture's power base eroded and with it its perceived uniqueness and worthiness.

Certainly the Great Depression contributed to the disruption and alteration of established social, economic and political structures. The severity of the economic collapse affected all sectors of the economy. With such widespread suffering and sacrifice, little sympathy or recognition was given to rural society, whose thin spread and remote population represented a minority of Americans. From 1929 to 1933, net farm income fell by 50 percent. Simultaneously, and making matters worse, the number of people living on farms actually increased by almost two million. During this era agriculture was hardly a business and certainly not a profitable one; it was more of a way to live than a way of life.

The depression's stranglehold on the farm sector caused a setback which required a decade of recovery. Land ownership and management and capital formation were disrupted substantially and the industry lacked investment for rebuilding in the absence of a strong macroeconomy. Dr. Parlberg in his book, *American Farm Policy,* assessed this condition in the following way:

> The Great Depression often hurt the good farmers more than the poor ones, chiefly because the poor ones had little to lose. The good farmers had generally adopted progressive practices that involved a heavy cash outlay for goods and services: fertilizer, fuel, power machinery, and the like. They had adopted the practices recommended by the extension service. Frequently these better farms were leveraged and had substantial charges for debt service. This meant high and continued cash costs, difficult to meet when receipts fell. The farmers that went broke generally were the venturesome ones who had obligated themselves for large cash outlays.

The "noble" farmer showed his extreme vulnerability as a businessman, not unlike countless other entrepreneurs at the time.

Farmers joined with their blue-collar contemporaries and marched on Washington. President Roosevelt attempted to improve the farm economy by implementing the Agricultural Adjustment Act in 1933. This action ushered in the use of widescale government involvement in the market economy. It began the age of the "Commodity Program" comprising mainly of price support mechanisms and production controls, the structure of which is still em-

ployed today. Roosevelt referred to the Act as "a new and untrod path" and a "trial of new means" to deal with—at that time—an unprecendented agricultural condition.

Farm net income more than tripled during World War II, rising from $5 billion in 1940 to $15.1 billion in 1946, while the farm population declined by over five million. Because of the economic gains, the original rationale for the commodity programs—to support prices and restrain production—lost its validity. In fact, farm programs were employed during World War II to encourage farmers to increase their output. Parity support was a further production enhancement.

Post-World War II food shortages in Europe and Asia, the Korean War and the Steagall Amendment enhanced farm prices in the United States to acceptable levels until 1963. Twelve years of prosperity (1941 through 1952) diminished the memory of the preceding decade and many farmers and their spokesmen believe that depressions were a thing of the past. However, cries for the Government to get out of agriculture faded quickly as farm income fell from almost $16 billion in 1951 to $13 billion in 1953 to $11.1 billion in 1957. Agricultural statisticians accented the farmers' renewed fears: in constant dollar terms their 1957 net income was equivalent to their earnings during the Great Depression.

Characteristic of the farm sector, there were as many opinions about the causes of the "farm problem" in the 1950's and 1960's as there were farmers. Depending on the source, government programs were welfare handouts or incentive instruments; impediments to foreign trade were restricting farm exports or holding domestic food prices down; export promotion activities benefited farmers by increasing sales or hurt farmers by adding to costs; the financial sector made farmers compete for loanable funds among a host of borrowers or the manufacturing sector was usurping credit resources away from the farm sector; large-scale operations were an economic response to a changing technology or threatened the very existence of the family farm. In addition, topics such as political philosophy, agricultural imports, domestic surpluses and farm management practices were subject to widely varying views.

The Subcommittee on Agricultural Policy of the Joint Economic Committee made a historic contribution to this debate in 1957–58. The Subcommittee's report, "Policy for Commercial Agriculture, Its Relation to Economic Growth and Stability," identified several important factors contributing to the farm problem:

(1) Rising productivity and shifting demands that characterize economic growth and development in the United States subject agriculture to persistent strains;

(2) Farm income is highly vulnerable to the impact of rapid technological advance;

(3) Because of agriculture's heterogenous structure (variety of commodities produced, extremes in farm sizes, incomes and ownership patterns, etc.) the farm income problem varies widely by circumstances and defies singular solution;

(4) Average rates of return on farm labor and investment in commercial agriculture are low in comparison to other industries;

(5) An imbalance exists between farm production and market outlets;

(6) Farm production surpluses will pervade for a decade unless new uses for agricultural commodities surface; and

(7) Increases in farm size and changes in optimal farm organization severely strain the farmer's ability to adjust to market and weather forces, thereby creating unstable farm income.

To solve a very complex farm problem their advice was the following:

(1) To expand outlets for farm resources by developing new industrial uses for products, expanding commercial markets abroad and donating food and fiber products to needy nations.

(2) To assist the normal flow of farm family members into other occupations; to promote programs that develop local nonfarm resources; to improve the education of farm people and train them in industrial skills and remove other obstacles to mobility.

(3) To assist farm families with making on-farm adjustments, the Government should provide financial assistance to smaller farmers "with reasonable prospects of success" to expand their operations to an economical size or exchange to a different farm enterprise.

(4) To implement income programs for commercial agriculture, farm income could be raised primarily through improvements in production controls—such as the restriction of quantities sold rather than acreage farmed, and negotiability of quotas. Some means of selling abroad at a lower price than at home, encouraging more direct farmer marketing, and programs to subsidize food consumption of low-income families also were promoted by the Subcommittee.

Regarding its recommendations, the Subcommittee, obviously frustrated, concluded "the programs suggested here are too diverse and uncoordinated, and the circumstances in which they must be worked out are too uncertain for successful operations." They suggested that consideration be given to creating a board or commission to manage farm programs.

A sense of frustration, pessimism, and futility characterizes the 1958 report. While some enthusiasm is generated in a few phrases such as, "when properly utilized, farm surpluses can serve as a valuable national asset" and "agriculture should not be defeatist about expanding the market outlets for its resources . . . there is no way of knowing how much success can be gained unless every effort is made to succeed," the effort to be optimistic is weak, and unconvincing. The farm problem was so complicated and severe that, in the Subcommittee's judgment, "programs to improve farm income apparently will be needed for a decade."

Farm Economic and Demographic Trends

In the quarter-century following 1957 agriculture underwent a drastic transition that changed the very structure of the farm economy. The industry adapted in a comparatively short time span to tremendous technological advances that altered economies of scale, labor and capital requirements, stewardship customs, and business

practices and opportunities. Strong market forces prevailed upon both the individual farm and the agricultural industry while bright prospects for the agri-business industry were created. Government intervention, in the form of increased regulation, subsidies, and credit allocation, also altered the environment in which agriculture existed.

A changing agricultural economy also had a significant effect on the overall U.S. economy. Productivity gains freed resources for alternative use, accounting for the decreasing proportion gross farm product is of gross national product. In addition, U.S. agriculture obtained a new prominence in international trade and foreign policy, adding substantially to U.S. trade balances.

The following data summarize the change that transpired between 1958 and 1981. The categories include statistics on farm structure, land, labor, production, finance and government.

The number of farms has declined from 4.2 million to 2.4 million (down 43 percent).

Farm population has fallen from 9.9 percent (about 20 million persons) to 2.7 percent (about 6 million persons) of total U.S. population.

Average farm size has increased from 392 acres to 431 acres.

Land in farms is down only marginally, from 1.12 billion acres to 1.04 billion acres. Planted acreage has increased less than 10 percent, from 326 million acres to 357 million acres.

The percentage of farm operators who are full-time owners has remained stable (57 to 58 percent), but a substantial shift away from the "all tenants" (renters) category to the "part owner" category has occurred.

The value of production assets per farm has increased tenfold, from $40,000 to $405,167.

Farm productivity has increased 32 percent, measured in terms of output per acre and 240 percent in man-hour terms.

The use of fertilizers has increased 45 percent.

Crop production is up 71 percent and livestock production up 37 percent.

The yield per acre of wheat has increased 55 percent and corn yields have doubled.

U.S. consumption of crops is up 29 percent and livestock products, 17 percent.

Farm gross domestic product has fallen from 4.6 percent to 2.5 percent of gross national product.

In 1958 dollars, farm net income has declined from $13.2 billion to $7.3 billion, a 45 percent drop. Real net income per farm, however, has declined about 3 percent, from $8,300 to $8,040.

Per capita farm income as a percent of per capita nonfarm income has increased from 55 percent to 92 percent.

Farm income derived from nonfarm sources as a percentage of total farm personal incomes has increased from 34 percent to 53 percent.

Government price support levels for wheat and corn have more than doubled. However, after adjustment for inflation, the support levels have actually decreased.

Although highly variable between 1958 and 1981, government payments per farm nearly tripled, but in real terms remained almost constant.

Prices paid by farmers have increased 227 percent while prices received by farmers went up 151 percent.

Foreign sales in 1981 accounted for 25 to 30 percent of gross farm income as compared to 11 percent in 1958.

The volume of U.S. farm exports has increased 290 percent.

Comparing the 1981 aggregate balance sheet for the farm sector to its 1958 counterpart reveals substantial changes in liabilities and the value and types of assets being employed. To make a direct comparison in real terms, the 1981 figures been adjusted for inflation in the third column.

TABLE 1.—BALANCE SHEET OF THE FARMING SECTOR

[In billions of dollars]

	1958	1981	1981 in 1958 dollars	Percent change 1958–81 in 1958 dollars
ASSETS				
Physical assets:				
Real estate	$115.9	$828.7	$263.1	127
Nonreal estate:				
Livestock	13.9	60.9	19.3	39
Machinery	20.2	102.3	32.5	61
Crops in-store	7.6	36.4	11.6	53
Household furnishings	9.9	22.0	7.0	−29
Financial assets:				
Deposits and currency	9.5	16.2	5.1	−46
U.S. Savings Bonds	5.1	3.8	1.6	−69
Investments in cooperatives	3.7	19.9	6.3	70
Total	185.8	1,090.3	346.1	86
CLAIMS				
Liabilities:				
Real estate debt	10.4	92.0	29.2	181
Nonreal-estate debt to Commodity Credit Corporation	1.2	4.4	1.4	17
Other reporting institutions	5.0	64.2	20.4	308
Nonreporting creditors	3.8	14.0	4.4	16
Total liabilities	20.4	174.6	55.4	171
Proprietors equities	165.4	915.7	290.7	76
Total	185.8	1,090.3	346.1	86
Debt-to-equity ratio	0.123	0.191		

Several points are noteworthy in this comparison. Uneven growth in the categories indicates that the relative importance of different ones has changed significantly, as the following highlights demonstrate:

The real value of all assets devoted to agricultural production has increased 86 percent.

Real estate assets have increased 127 percent while nonreal estate assets have increased only 36 percent. Financial assets have actually declined by 29 percent.

Real estate accounted for 62 percent of total assets in 1958 and 76 percent in 1981.

Total liabilities increased 75 percent while equity increased by 454 percent. As a result, the debt-to-equity ratio has deteriorated from 12.3 percent to 19.1 percent. Also, the ratio of incremental increases in debt to additions to equity since 1953 is 27.9 percent.

Economic events of the 1970's—particularly the internationalization of U.S. agriculture and substantial increases in the rate of inflation—had dramatic effects on the structure of U.S. agriculture. Together with technological change and the effects of incentives of Federal farm programs, the trend toward large scale farming was created. Between 1959 and 1981, while the number of farms declined by over 500,000, gross farm income increased 196 percent and farm production expenses increased 236 percent. In 1959 less than 2 percent of all farms had sales in excess of $100,000 while in 1981 over 12 percent—approximately 300,000 farms—had sales of this magnitude. These 300,000 farms accounted for 64 percent of total gross farm income, over 100 percent of total net farm income (smaller farms showed net loses) and 45 percent of direct government payments in 1981.

TABLE 2.—PERCENTAGE DISTRIBUTION OF FARM INCOME, EXPENSES AND GOVERNMENT PAYMENTS BY VALUE OF SALES CLASS 1969 AND 1981

Item and year	Farms with sales of—									
	$500,000 and over	$200,000 to $499,999	$100,000 to $199,999	$40,000 to $99,999	$20,000 to $39,999	$10,000 to $19,999	$5,000 to $9,999	$2,500 to $4,999	Less than $2,500	All farms (actual)
Number of farms:										
1969	0.1	0.4	1.1	5.2	10.1	12.3	12.7	12.2	45.9	3,000,000
1981	1.0	3.6	7.6	16.3	11.4	11.7	13.8	13.6	21.0	2,400,000
										(Billion)
Gross farm income:										
1969	12.9	7.0	9.3	20.3	19.5	12.9	7.2	4.0	6.9	$56.3
1981	28.0	17.8	18.4	19.0	6.5	3.8	2.7	1.8	2.0	161.2
Net farm income:										
1969	16.2	7.0	9.2	23.0	23.4	14.5	6.8	1.1	−1.2	14.2
1981	66.3	20.3	15.1	7.7	−1.2	−1.5	−1.7	−2.4	−2.6	19.6
Farm production expenses:										
1969	11.8	7.0	9.3	19.4	18.2	12.4	7.3	5.0	9.6	42.1
1981	22.7	17.5	18.9	20.5	7.6	4.5	3.3	2.4	2.6	141.6
Direct government payments:										
1969	3.0	3.3	6.5	18.3	22.7	18.7	11.1	6.4	10.0	3.8
1981	15.2	12.9	17.2	23.9	12.4	8.6	6.3	1.7	1.8	1.9

As of January 1, 1982, the 300,000 farms with sales of $100,000 and over—12 percent of all farms—accounted for 43.9 percent of all farm assets, 51.3 percent of all farm liabilities, 42.3 percent of all farmowner equity and one-half of all Commodity Credit Corporation loan activity. In all cases, these show substantial increases just since 1978.

TABLE 3.—PERCENTAGE DISTRIBUTION OF FARM ASSETS, LIABILITIES, OWNERS EQUITY AND CCC LOANS BY VALUE OF SALES CLASS, 1978 AND 1982

Item and year	Sales class—							
	$100,000 and over	$40,000 to $99,999	$20,000 to $39,999	$10,000 to $19,999	$5,000 to $9,999	$2,500 to $4,999	Less than $2,500	All farms (actual)
Number of farms:								
1978	8.7	14.7	12.0	12.1	13.0	13.0	27.0	2,436,000
1981	12.2	16.3	11.4	11.7	13.8	13.6	21.0	2,436,000

TABLE 3.—PERCENTAGE DISTRIBUTION OF FARM ASSETS, LIABILITIES, OWNERS EQUITY AND CCC LOANS BY VALUE OF SALES CLASS, 1978 AND 1982—Continued

Item and year	Sales class—							
	$100,000 and over	$40,000 to $99,999	$20,000 to $39,999	$10,000 to $19,999	$5,000 to $9,999	$2,500 to $4,999	Less than $2,500	All farms (actual)
								(Billion)
All assets:*								
1978	35.4	24.0	12.1	8.0	6.2	5.0	9.2	$736.3
1982	43.9	23.9	10.1	6.7	5.5	4.3	5.6	1,091.8
All liabilities:*								
1978	41.7	24.0	11.7	7.1	4.9	3.9	6.7	119.3
1982	51.3	22.9	9.1	5.6	4.3	3.1	3.7	194.9
Owners equity:*								
1978	34.2	24.0	12.2	8.2	6.5	5.2	9.7	617.0
1982	42.3	24.2	10.3	6.9	5.8	4.5	6.1	896.9
CCC loans:*								
1978	43.3	32.4	13.9	6.3	2.6	.9	.5	4.5
1982	50.2	30.7	10.9	4.9	2.3	.8	.3	8.0

*As of January 1.

At the other end of the sales-class spectrum, almost one-half of all farms had sales of less than $10,000 in 1981 and accounted for but 6.5 percent of all farm income, yet 16.4 percent of total farm equity. By contrast the income and equity shares of large-scale farms with annual sales of $100,000 and over were 64.2 percent and 42.3 percent, respectively.

Certainly one of the more dramatic changes in agriculture over the last two decades has been farming's growing reliance on off-farm sources of income. Presently less than $4 out of every $10 of total farm family income comes from the sale of farm products. This dependency, however, is influenced greatly by the size of the farm. Off-farm income represents only 8.9 percent of total farm operator income for farms with sales of $200,000 and over, while for farms selling less than $5,000 of produce, off-farm income represented 104.9 percent of total operator income, indicating that off-farm income was used to cover income losses from farming.

TABLE 4.—FARM OPERATORS INCOME AND GOVERNMENT PAYMENTS BY VALUE OF SALES CLASS, 1981

Item	Sales class							
	Less than $5,000	$5,000 to $9,999	$10,000 to $19,999	$20,000 to $39,999	$40,000 to $99,999	$100,000 to $199,999	$200,000 and over	All farms
				Million dollars				
Farm operators income summary:								
Total operator income	17,951	5,937	3,887	2,912	5,934	6,192	21,637	64,446
Farm sources	−885	−233	−123	86	2,551	4,006	19,719	25,117
Off-farm sources	18,836	6,170	4,010	2,826	3,383	2,186	1,918	39,329
				Dollars				
Income per operator: [1]								
Total income	21,294	17,772	13,591	10,475	14,985	33,290	193,188	26,458
Farm sources	−1,050	−696	−430	309	6,442	21,538	176,063	10,312
Off-farm sources	22,344	18,418	14,021	10,165	8,543	11,753	17,125	16,146
Per farm direct Government payments [2]	80	363	577	860	1,167	1,167	4,857	793

[1] Assumes one operator per farm.
[2] Included in income per operator, farm sources, above.

This relationship between off-farm income and farm income losses has become a very controversial issue within and outside agricultural circles. The Internal Revenue Service recently completed

an analysis of 1976 farm tax returns and found a positive relationship between off-farm income and farm losses—that is, the higher the off-farm income the higher the income losses from farming. In 1976, 12,000 returns showed farm losses of $50,000 and more. These same returns revealed an average off-farm income of $122,080. As a result, the adjusted gross income of these tax filers was a mere $16,362. Conversely, farms showing profits in 1976 showed considerable less dependency on off-farm income. The end result is that the adjusted gross income of all farms reporting losses in 1976 was only marginally lower than the adjusted gross income of all farms showing a profit.

TABLE 5.—IRS FARM AND OFF-FARM INCOME, BY INDIVIDUALS REPORTING FARM PROFITS AND LOSSES, PER FARM, 1976

Item	Number of returns	Adjusted gross income	Farm income or loss	Off-farm income
Farm profits:				
$50,000 or more	17,000	$81,673	$74,911	$8,706
$25,000 to $49,999	81,000	37,671	32,979	5,684
$10,000 to $24,999	231,000	21,196	15,624	6,110
$5,000 to $9,999	210,000	13,291	7,178	6,507
$2,000 to $4,999	252,000	11,027	3,233	8,226
$1,000 to $1,999	179,000	9,872	1,441	9,148
$1 to $999	358,000	10,512	397	10,851
All farms with profits	1,328,000	15,366	7,716	8,245
Farm losses:				
$50,000 or more	12,000	16,362	−104,448	122,080
$25,000 to $49,999	24,000	17,366	−33,942	51,602
$10,000 to $24,999	93,000	15,423	−15,154	32,348
$5,000 to $9,999	191,000	13,571	−6,836	20,641
$3,000 to $4,999	228,000	13,638	−3,842	18,151
$1 to $2,999	917,000	13,329	−1,184	14,864
All farms with losses	1,465,000	13,631	−4,568	18,669
All individuals	2,793,000	14,533	1,268	13,877

The IRS study also found that almost one-half of all farms lost money year in and year out during the period 1970 to 1978. In 1973, considered to be the best year on record for agriculture, 39 percent of all farms reported income losses from farming operations.

Another important characteristic of U.S. farming is the kind of business organization involved in farming—whether sole proprietorship, partnership or corporation. According to the IRS, while the number of farm corporations more than doubled from 20,000 in 1970 to over 50,000 in 1978, corporations still represent just 2 percent of all farm businesses. Corporations, however, were reported to account for 20 percent of total farm business receipts in 1978. The average per farm net farm income of sole proprietorships in 1978 was $8,715; for partnerships, $18,283; for subchapter S corporations, $57,708; and for subchapter C corporations, $334,475.

TABLE 6.—USDA FARM INCOME, PRODUCTION EXPENSES, AND OFF-FARM INCOME BY BUSINESS ORGANIZATION, 1978

Item	Sole proprietorships	Partnerships	Subchapter S corporations			Subchapter C corporations			Others not elsewhere classified [1]	Total farms
			Family	Nonfamily	Total	Family	Nonfamily	Total		
	Million dollars									
Total farms:										
Gross farm income [2]	$81,145	$19,856	$16,416	$4,172	$20,588	$1,442	$3,452	$4,894	$761	$127,244
Production expenses	62,486	15,523	14,100	3,718	17,818	1,186	2,927	4,113	649	100,589
Net farm income	18,659	4,333	2,316	454	2,770	256	525	781	112	26,655
Off-farm income [3]	26,337	2,384								28,721
Total income of farm operator families	44,996	6,717								55,376
	Dollars									
Per farm:										
Net farm income	8,715	18,283	53,860	90,800	57,708	211,570	466,667	334,475	13,647	10,942
Off-farm income	12,301	10,059								11,790
Total income of farm operator families	21,016	28,342								22,732

[1] Institutional farms including cooperatives, trust, and estates.
[2] USDA gross farm income equals cash receipts, Government payments, other farm income, home consumption, imputed rental value of farm operators' dwellings, and net inventory change.
[3] Off-farm income is collected by USDA for sole proprietorships and partnerships only.

The economic trends of the 1960's and 1970's—a weakening in financial vitality and tremendous growth in production principally—continued in the early 1980's. The agricultural recession which began in 1979 did not improve in conjunction with the temporary recovery of the U.S. economy in 1981 and deepened in 1982. Problems emerged on both the income and expense sides of the accounting sheet. In spite of the Federal acreage reduction program, record corn, soybean and wheat harvests were realized in 1982. Because of only modest export growth and stagnant domestic demand, carryover stocks grew from their already excessive surplus levels. As a result farm prices plummeted. Punctuating the decrease in prices was an increase in costs absorbed by farmers. Market conditions did not allow these costs to be passed on to processors or consumers. Hence, real net farm income fell to its lowest level since the 1930's.

Because the Government is very involved in the agricultural economy, the cost to the public has risen significantly. Farmers have forfeited grain under price support loans in amounts not attained for a decade. The default and foreclosure rates on government-sponsored farm loans have increased steadily to their current alarmingly high level. High interest rates, increased debt burden, and cash-flow disruptions among other factors, have all contributed to loan problems.

Trends and changes in income sources, farmland values and financing, government intervention, production techniques, and exports have altered the economic structure of the farm. Farm operations have become more dependent on off-farm sources of income to augment finances; only 37 percent of total farm income now comes from farm marketings. Income also has become more dependent on export sales, which now account for one-third of total sales. Historically, the export market has been much less stable

than the domestic market; greater reliance on exports has lead to greater income uncertainty.

Rates of return on equity, while always low relative to the performance of other industries, currently are much lower than the historical average of 3 percent. The speculative value of land appears to be greater than its production value, explaining in part the historical low rates of return. The financial well-being of the farm has become even more reliant on the value of real estate assets, which increased over 600 percent in nominal terms (127 percent in real) since 1958. Land value increases accounted for 79 percent of the increase in the value of all assets since 1958.

However, thus far in the 1980's, farmland values have declined. This decline has caused considerable strain on highly leveraged operations whose collateral bases have deteriorated. Despite equity gains in the asset base, the debt-to-equity ratio has increased 55 percent since 1958, giving further evidence of a worsening financial picture.

Federal farm policies and programs over the last 25 years have attempted to achieve economic stability by encouraging the exit of resources out of agriculture. However, these efforts have failed due to rapid technical advances, ineffective incentives, the use of inadequate production control factors, and contradictory policies that have encouraged production. Farmers simply substituted capital and chemicals for land and labor and in the process created greater productivity and more efficient use of inputs. The amount of resources devoted to agriculture is almost the same as was employed during World War II, but the present mix of labor and technology produces 70 percent more output.

Agriculture's capability to produce in excess of domestic needs appears to have created the initial stimulus to export; that is, the supply prompted a search for the demand. The rapid growth of food exports contributed positively to U.S. balance of payments and strengthened America's industrial base and gross national product. Despite these gains, Federal policymakers have continued to employ production disincentives to deal with farm price and income problems. Had these restraint policies succeeded, U.S. food production technology may not have been developed to the degree that it has.

Clearly, world leaders recognize what potential lies in the hands of the world's most efficient food producer. Yet, agriculture's clout appears to remain muted in U.S. leadership circles despite the tremendous benefits given to our nation through economic stimulus (favorable balance of trade and ample domestic food supplies at relatively low prices) and political enhancement (using food for humanitarian purposes and as an instrument of foreign policy).

National and International Economic Influences

Perhaps the most fundamentally significant difference between the agricultural industry of 20 years ago and the industry today is the tremendous influence of national and international economic forces outside the farm sector on the U.S. food economy. Though historically isolated and insulated from changes outside the farm sector, agriculture has been integrated into the macroeconomic

system. The decade of the 1960's witnessed change in industrial and social structure which primarily affected urban America. As these changes required more national attention, rural interests and concerns became less recognized and a lower priority, resulting in further erosion of agriculture's political prominence. The farm industry's unique market structure was no longer given extraordinary consideration despite the importance of food in the economy. Food supplies were taken for granted because of years of abundance.

A number of factors were imposed on the farm sector during the 1970's including inflation, high interest rates, sagging commodity prices and a faltering domestic economy whose real output and income stagnated and actually declined. On the international level, American agriculture was affected by fluctuating demand, a global economic slowdown and peculiarities in foreign currency exchange rates. Each of these factors has had a dramatic influence on farm income and financial well-being.

Before elaborating on these macroeconomic and international influences, two aspects of the agricultural sector must be noted. First, the U.S. farming industry exists in an almost perfectly competitive market structure, and it is the only major industry to have this distinction. Farmers are faced with the classical element of competition: they are price takers. The individual farm business is simply too small, relative to the size of its industry, to influence the price of either inputs or outputs. Farmers buy from, and sell to, firms that compete in economic environments that are considerably less "perfect" than their own. As a result, cost increases in production inputs and increases in marketing costs are more easily passed forward onto the farmer than backward onto the producer of inputs. On the revenue side of the ledger, prices are taken as given, and for most products, are essentially dependent on current supply and demand. Excess supplies and/or a slumping demand can dramatically depress prices. In fact, excess food supplies can, for all intents and purposes, be worthless and even burdensome since food is perishable and storage costs are considerable.

Second, declining Federal support has made agriculture compete more directly for national economic resources. This is apparent in the case of loanable funds. While loans to farms and industries supporting farms were formerly given subsidized rates, the terms of those loans today more closely reflect market conditions.

An inflationary environment imposes a burden on industry and consumer alike. The farm was especially hit hard by the exponential increases in oil prices during the 1970's. Farmers substantially increased their substitution of equipment for labor in the 1960's and 1970's, and the accompanying greater dependence on energy has resulted in increased farm costs. As many of the chemicals used in farming are petroleum derivatives, these costs increased dramatically as well. Since farmers are generally price takers on all inputs, the burden of cost increases is passed on to them.

Since 1979, while prices received by farmers virtually remained constant, prices paid by farmers for production items, interest, taxes and wages have increased almost 25 percent. Between 1979 and March 1982, inflation, as measured by the consumer price index, advanced 30 percent. A considerable portion of American so-

ciety managed to keep pace with inflation through negotiated cost of living adjustments. To American farm owners, however, inflation is a direct out-of-pocket expense.

Like all industries, agriculture is affected directly by Federal fiscal and monetary policy. Emphasis since 1980 has been placed on reducing inflation and interest rates. Clearly Reagan Administration policies have succeeded in reducing dramatically the rate of inflation. The lessening of cost pressures may have saved the farm production sector $7 to $9 billion in 1982 alone. While interest rates have fallen during the last two years, debt service costs for farms remain tremendously burdensome.

Stricter fiscal policies produce much greater competition among federally funded programs, and agricultural programs will face considerable scrutiny and must justify their value to society. Although little progress has been made in reducing deficits, the rapid rise in entitlement and defense spending is "crowding out" spending in other traditional Federal programs. The recent immense cost increase in farm income and price maintenance programs may not be tolerated by government officials and taxpayers alike.

Taxes also are costs affecting farm operations. The Economic Recovery Tax Act of 1981 should reduce short- and long-term farm tax liabilities. In addition to phasing in personal and corporate income tax rate reductions, the Act allows farmers to recover capital outlays over a shorter period of time which will result in greater incentives for investment in the farm sector, and substantially reduces estate and gift taxes which will facilitate the transfer of farms from one generation to another. Changes in the tax structure cannot be expected to produce extensive improvements in the financial condition of the industry as a whole, however, since about half of all farm operations do not generate a positive before-tax income.

The entire domestic economy has been faltering for the past eight years due to inflation, changes in savings and investment behavior, changes in demographics, unemployment trends, and foreign competition. During the late 1970's purchasing power shrank as real disposal income fell. Millions of families also had to adjust to unemployment of one or both of the income earners. As households adapted their budgets to tight circumstances, food expenditures were also adjusted. For example meat has a high income elasticity, thus consumers have substantially decreased their purchases of meat during the past several years. In addition, unemployment has hurt farm households because 60 percent of farm income is now earned through off-farm sources.

At a time when farm costs have risen at a fast pace, prices for farm commodities have been lackluster at best. Responding to both supply and demand changes, prices have been subjected to downward pressure. In respone to higher costs, farmers have increased production, causing a greater surplus, which in turn has resulted in even lower prices. This vicious cycle has created the worst economic condition of agriculture since the 1930's.

Price decreases caused by three years of record-breaking crop production, cost increases due to years of compounding inflation and export contractions prompted by a diminished demand for U.S. grain simultaneously have created a cost-price squeeze that has

crippled farm finances. As a result, farm proprietor's income plummeted 45 percent between 1979 and 1982. This national income account pales in comparison to other entries; in this time interval non farm proprietor's income was up 33 percent, wages and salaries increased 25 percent, and transfer payments rose by 44 percent. Farm revenues have held relatively steady, revealing that inflated farm expenses have eroded profitability. If only production expenses had remained constant between 1979 and 1980, net farm income would have been 60 percent higher than actually was realized.

The center of attention and concern lies with the current economic condition and future prospects of the crop sector of U.S. agriculture. A primary finding of the spring 1982 hearings of the Subcommittee on Agriculture and Transportation was that many of the present problems facing U.S. agriculture today are, in large part, a direct consequence of dramatic changes in the structure of the world's economy and in the institutional arrangements which guide that economy. The internationalization of U.S. agriculture during the decade of the 1970's has significantly changed the context of domestic agricultural policy. Foremost, there is strong evidence that conventional commodity programs are an inadequate means of dealing with agriculture's current economic problems.

U.S. agriculture's expanding world role is demonstrated easily. During the 1970's wheat and corn exports quadrupled. Currently, the U.S. exports over 60 percent of its annual wheat production, 26 percent of its coarse grains and 42 percent of its soybeans. Estimates indicate that over one-half of U.S. crop cash receipts come from the export market. Equally important is the high concentration of U.S. exports to a small number of countries. In 1980/81, the U.S.S.R. and China accounted for 30 percent of our wheat exports, Western European countries and Japan over 50 percent of our coarse grain exports and the European Economic Community and Japan over 60 percent of our soybean exports. One-third of all U.S. exports of wheat, coarse grains and soybeans go to three countries—the U.S.S.R., Mainland China and Japan. These delicate elements make the income of U.S. crop farmers very vulnerable and highly unstable. For example:

Wheat exports to the U.S.S.R. more than doubled from 1980 to 1981.

Wheat exports to China increased from 1.6 million metric tons in 1979 to 8.0 million in 1981.

Coarse grain exports to Japan fell by more than 15 percent in one year while exports to the U.S.S.R. climbed more than 50 percent.

Soybean exports to the U.S.S.R. reached a peak of almost 1.2 million metric tons in 1978 and then, two years later in 1980, fell to zero.

Within two years China cut its U.S. soybean imports in half.

The extreme dependency of U.S. farm income on the size and variability of export sales presents a very difficult challenge to domestic farm programs. In addition to excess supplies and agressive international competition, the "farm problem" can be described in terms of a national and worldwide recession, a strengthening of the U.S. dollar, high interest rates and high domestic inflation.

Unfortunately, international politics add to U.S. agriculture's predicament. The most obvious example is the 1980 Russian grain embargo. Since 1978/79, the U.S.S.R. has more than tripled its grain imports. Unfortunately the U.S. farmer's share of the market has been reduced from 74 percent in 1978/79 to 34 percent in 1981/82. Our major competitors have been more than anxious and successful in satisfying the Soviet Union's needs. The following chart shows the quantity and source of Soviet grain imports:

TABLE 7.—U.S.S.R. GRAIN IMPORTS BY SOURCE

Source	Million metric tons				Percent change, 1978–79 to 1981–82
	1978–79	1979–80	1980–81	1981–82	
United States	11.0	14.6	8.0	15.4	40
Canada	2.1	3.0	6.9	9.2	338
Australia		3.7	2.9	2.5	
European Community	0.2	0.1	1.1	1.8	800
Argentina	1.4	5.0	11.2	13.3	1,250
Others	0.2	1.0	3.9	2.7	1,201
Total	14.9	27.4	34.0	44.9	201
U.S. share (percent)	73.8	53.2	23.5	34.2	

Yet another disturbing trend in international grain trade is the growth in bilateral, government-to-government, trade agreements. Canada, for example, has at a minimum almost 55 percent of its total wheat and barley exports for 1982/83 committed to bilateral agreements far in advance of delivery. Canada's largest grain agreements are with the U.S.S.R., Mainland China and Japan. Perhaps as much as 40 percent of the world's grain trade is locked in by trade agreements. The open and competitive world market for grain is shrinking.

The high value of the U.S. dollar relative to the currencies of other countries has become an extremely detrimental factor in the U.S. competitive position in world grain markets. Since 1979, a 40 percent increase in the worth of the dollar has occurred. Some analysts estimate that the dollar is overrated by as much as 25 percent against other major currencies. American farmers find it difficult to understand why foreign countries cannot buy their products when they are being offered at such depressed price levels.

A partial, but important, explanation is the extremely significant impact that exchange rate realignments can have on the foreign demand for U.S. agricultural products. For example, while on-farm U.S. soybean prices fell by 30 percent between September 1980 and September 1982, during the same period the cost of soybeans to foreign purchasers actually increased by 60 percent. To potential importers, this effective price increase, combined with the generally depressed economies of these importing countries, has reduced substantially the ability to pay, and therefore the demand for U.S. agricultural products. Eastern European countries, and Mexico, previously considered as key growth markets for U.S. food products, are on the brink of financial collapse.

The distressed financial condition of several important U.S. agricultural product importers, including the U.S.S.R., makes it extremely and increasingly difficult for them to obtain credit from commercial sources. As a result, exporting countries are forced to provide government subsidized credit to make sales. The subsidy generally takes the form of a government "buy down" of interest rates and/or guaranteed loans.

The eagerness on the part of some exporting countries to provide subsidized credit to buyers is just one indicator of the expanding involvement of government in agricultural international trade. In addition to subsidizing the purchase of the product, many countries—most notably the European Economic Community (EEC)—directly subsidize the production of the commodity. France's export subsidy program, for example, directly stimulates wheat production in that country. This increased production, coupled with a policy designed not to accumulate stocks, results in dumping wheat on the world market, which exerts downward pressure on prices. Estimates indicate that the European Community spent nearly $1.5 billion to subsidize cereal exports in 1981. EEC government expenditures for agricultural programs accounted for 16 percent of the value of production from 1976 to 1980. In Japan that support figure is almost 27 percent. Since traditional U.S. Government support is around 3 percent, and even for 1983—a year of unprecedented Federal farm outlays—amounted to 8 percent, a considerable competitive disadvantage is created by this intervention.

Processed U.S. agricultural products face not only increased subsidized foreign competition, a high valued U.S. dollar, depressed world economies, etc., but also a host of tariff and nontariff trade barriers. Generally trade barriers are lower for raw agricultural products that serve as inputs to another further stage of processing, and higher for semifinished products. Canada, for example, has a zero tariff on raw soybeans, a 10 percent ad valorem tariff rate on crude soybean oil, and a 17.5 percent ad valorem tariff rate on refined soybean oil. The European Community has a similar tariff scale, as do many other countries. A variety of nontariff barriers also confronts U.S. agricultural exporters—licensing, state valuation, state trading, and special duties, standards and health regulations. Together with tariff arrangements these barriers are imposed to protect domestic processing industries. This protectionism is usually escalated considerably during periods of economic recession, as the world currently is experiencing.

Such international cooperative efforts as multilateral trade negotiations and the General Agreement on Tariffs and Trade appear to have little staying power when national interests are at stake. For example, the Tokyo round of the Multilateral Trade Negotiations yielded an agricultural "subsidies code" restricting the use of subsidies in international trade. Yet immediately after signing the code in June of 1979, the European Economic Community began subsidizing chicken parts in addition to whole birds. Between 1967 and 1978, annual expenditures by the EEC on subsidies for poultry meat exports have increased eleven times. In 1979 and 1980, EEC subsidies exceeded total expenditures for the entire previous twelve year period. In 1981 alone, the EEC spent $1 million on poultry meat export subsidies.

While the United States certainly has its protectionist trade policies—most notably in regard to dairy products and sugar—it reacts very differently to symptoms of overproduction. The expenditure of millions of dollars to store and isolate huge supplies of grain from the international market, and the provision of incentives to U.S. farmers to idle and divert land out of production is ample evidence of this country's commitment to stabilizing and improving the economic condition of world as well as American, food producers. A USDA official recently responded with the following:

> I cannot help but wonder how long the United States can continue to absorb the burden of unilateral adjustments to world market conditions. Perhaps we are approaching the point at which policy adjustments, which may be painful in the short run, are necessary to ensure longer term prosperity for U.S. agriculture. . . . It may be necessary to deviate temporarily from our free market stance and engage in costly short-run trade wars to achieve the principles that we have set forth.

III. 1982: THE END OF A FARM POLICY ERA?

Contrary to popular perception, the fundamental philosophy underlying traditional U.S. farm programs is market-oriented—that is, artificial manipulation of supply and demand. The method of manipulation is contained in provisions of farm program legislation. When farm prices are low due to excess supplies and/or depressed demand, incentives are provided to farmers to voluntarily curtail production and/or isolate from the market existing supplies through long-term storage commitments. Demand is enhanced simultaneously through a variety of export promotion efforts and domestic food consumption enhancements such as food stamps, the school lunch programs, and donations to the poor and needy. If farm prices, and therefore food prices, are too high, production control incentives are not offered and long-term storage of food supplies is discouraged. With few exceptions, the challenge to Federal farm programs for 50 years has been to enhance prices through supply control and demand promotion.

Following a recordbreaking crop in 1981 and plummeting commodity prices, a supply control program was set in place for the 1982 crop. In return for reducing their acreage by 15 percent wheat farmers were eligible for a government nonrecourse loan of $3.55 per bushel and a guaranteed target price of $4.05 per bushel. Should wheat market prices remain below $3.55 the farmer would simply surrender his production to government ownership, keep the $3.55 and collect a market deficiency payment of 50 cents per bushel, the difference between the loan rate and the target price. Should the market price be somewhere between the loan rate and target price, farmers, of course, would pay off the Government loan and be entitled to a deficiency payment equal to the difference between the market price and the target price. The Government's objective was for the 15 percent cut in production to raise prices above the loan rate, and hopefully above the target price so that little or no government costs would be incurred. Loan rates and target prices also are offered to feed grains and upland cotton producers in exchange for idling acreage. Loan rates alone were available to rye and soybean growers. For commodities that are already produced and in excess supply, the government may offer farmers participating in the supply control program a higher loan rate ("reserve loan") plus storage payments to encourage long-term removal of the commodities from the market.

The estimated cost of the 1982 farm program was $12 billion, triple the cost of farm programs just a year earlier. The result was disappointing, indeed: another recordbreaking crop, farm prices (from mid-1981 to late 1982) fell 10 to 25 percent and farmers suffered their third consecutive year of poor farm income. Responding to the most basic of economic laws, participating farmers idled their least productive, lowest yielding land and intensified their ef-

forts on planted acreage. As a result, the increased output on planted acreage more than offset the zero output on diverted acres.

In the summer/fall of 1982 Secretary of Agriculture John Block announced the supply control provisions for the 1983 crop. Mandated by the 1981 farm bill, wheat target prices were raised 25 cents per bushel to $4.30 and corn target prices increased from $2.70 per bushel to $2.86 per bushel. Loan rates for both wheat and corn were raised 10 cents per bushel. In an effort to expand farmer participation and acreage enrollment under supply control, Secretary Block sweetened the pot further by offering a paid land diversion program for wheat, feed grains and upland cotton. Under the paid land diversion program, corn farmers, for example, in addition to taking 10 percent of their land out of production to be eligible for target price and loan protection, would be paid to idle another 10 percent of their land. This land-diversion payment would be equal to the payment rate of $1.50 per bushel times the historic average per acre yield of the farm times the acres diverted. As yet a further enticement, farmers could request an advance on their 1983 diversion payments of 50 percent of their entitlement.

The last three months of 1982 following Secretary Block's announcement of the initial 1983 production control program offering likely will go down in U.S. farm policy history as its "day of reckoning." Policy tools were backfiring or at best ineffective; policy goals appeared unattainable, at tremendous cost. USDA projections showed that the increases in target prices and loan rates and the paid land diversion program probably would cause farmers to reduce 1983 acreage harvested by only two to four million acres from 1982 levels. In 1982, wheat and corn farmers alone harvested over 150 million acres.

IV. 1983: FARM POLICY IN TRANSITION

Weak domestic demand, declining exports, and record-large 1981 and 1982 harvests had increased stocks, lowered commodity prices, depressed farm income, and boosted government expenditures; 1983 promised more of the same. In January 1983, Secretary Block unveiled the payment-in-kind (PIK) program.

The PIK program is not a new concept. Corn and sorghum producers in 1961 and 1962 were offered the option of receiving payment-in-kind or cash payments for idling acreage. Given the choice, farmers almost exclusively took cash payments. The 1983 PIK, however, differs from its earlier version in that producers are not provided with a cash option.

The PIK program was in addition to the acreage set-aside and paid diversion programs announced just three months earlier. PIK gave farmers of wheat, corn, grain sorghum, rice and upland cotton the option to retire additional acreage and they would be compensated for the foregone production with grain from the farmer-owned reserve and Commodity Credit Corporation inventories. Thus farmers, in addition to retiring 20 percent of their land under the acreage reduction and paid land diversion programs, could idle another 10 to 30 percent of their acreage base. Corn farmers retiring acreage under the PIK program would receive in payment 80 percent of their normal yield. Wheat farmers qualified for 95 percent of their normal yield. In addition, farmers had the opportunity to submit sealed bids to USDA indicating the percentage of their normal yield that they would accept as in-kind compensation for idling their entire farms.

Complemented by earlier programs, the objectives of PIK were clear:

To minimize future direct government outlays in support of agriculture;

To reduce production and stocks at the same time;

To increase farm income;

To assist in easing storage problems; and

To improve conservation practices.

Enrollment in the PIK program was a tremendous success, typified by Secretary Block's comments that it was beyond his "wildest expectations." Farm experts, however, after analyzing the incentives built into PIK and its potential financial payout, strongly recommended farmers to go as deep into PIK as the Government would allow. USDA's first estimate was that farmers would cut their acreage by about 26 million acres. In April 1983, USDA found that farmers intended to cut production by about 50 million acres. As a result, compared to 1982 levels, wheat production was projected to decline 19 percent; corn production 33 percent; grain sorghum 17 percent; rice 28 percent; and upland cotton 24 percent. While

not included in any acreage reduction program, soybean production was expected to decline 8 percent.

Given these substantial cutbacks in farm output, ending stocks would be depleted and prices would rise. For example, compared to a season average price for corn in 1982–83 of $2.55 per bushel, USDA projected a 1983–84 season average price of between $2.70 and $3.10 per bushel. Season average wheat prices in 1983–84 were expected to attain levels somewhere between $3.50 and $3.90 per bushel compared with the average price in 1982–83 of $3.45.

All these estimates were prior to the commencement of the growing season, before anyone knew of the disastrous weather conditions of the summer of 1983.

The Government's supply control program including PIK and the drought had the following results:

TABLE 8.—1982/83 (ACTUAL) AND 1983 (ESTIMATED) PRODUCTION AND ENDING STOCKS

	Production		Ending stocks	
	1982–83	1983–84	1982–83	1983–84
Total grains	336.9	204.9	141.9	64.2
Coarse grains	255.5	136.1	106.8	34.1
Wheat	76.4	65.5	41.9	40.1
Soybeans	60.7	41.8	10.5	3.8
Cotton	12.0	7.5	7.9	4.0

Note.—Grains and soybeans shown in million metric tons and cotton in million 480-pound bales.

Using an estimated market value of commodities given to farmers, the public cost of PIK has been calculated at about $12 billion. These commodities were government assets; commodities that were, or likely would have been surrendered to government ownership under the loan program. Farm bill legislation permits the Government to sell or otherwise dispose of these commodities in the market should market prices exceed a release or trigger price. The release price for corn is $3.25 per bushel. By late 1983, market prices were well within the reach of the Government's trigger price. The depletion of government stocks may significantly impair the capability of government to dampen commodity and thereby food price increases by releasing stocks into the market.

When the PIK program was announced in January, it generally was received in most quarters as a bold and innovative measure, one which could very well kill two birds with one stone: reduce taxpayer costs while simultaneously improving the depressed economic condition of agriculture—more accurately grain farmers. PIK, it was projected, while improving farm net income by $3 billion over pre-PIK estimates, was going to save the taxpayer over $4 billion, have little or no effect on food prices, farm exports or national employment. It was admitted, however, that the impact of PIK on the farm input industry, in the short run, would be the most pronounced. Fertilizer use and farm machinery repair expenditures, for example, were projected to decline 12 to 14 percent. PIK promised great benefit at a minimum cost—the ideal Government program.

By spring, however, the enthusiasm began to wane. Livestock and poultry producers, the largest purchasers of feed grains, saw

supplies tighten and prices begin to rise. Grain farmers, it was contended, were not only receiving preferential treatment but were being bailed out at the expense of the livestock industry which was certainly facing its share of economic problems. Second, fears were expressed that such a large cut in production and supplies would cause U.S. grain prices to rise too high thus pricing ourselves out of the world market.

Third, the United States was the only country in the world which was reducing grain production. While the United States was cutting its grain production by 90 million metric tons, its world competitors in the international market were increasing their production by 90 million metric tons. The rest of the world seemed more than anxious and capable of replacing the United States as a grain producer and supplier.

Fourth, some questioned the morals and ethics of a country which intentionally, and at great public cost, reduces food production in the face of rising world hunger.

But perhaps the most serious criticism of the PIK program concerned the issue of equity in the distribution of PIK benefits. Unlike other farm income and price support programs which have a $50,000 cap on per farm payments, PIK benefits were, theoretically, limitless. At $3.00 per bushel, an acre of average corn land would return $250.00 to its owner in PIK payments. Enrolling 4,000 acres yields a one million dollar government payment. During the summer of 1983 stories appeared in the media describing large profitable farmers, land speculators and nonfarm corporations receiving million dollar and, in some cases, multi-million dollar government subsidies. It is important to recognize that all government farm income and price support programs, including PIK, are designed first and foremost to reduce production and are not targeted to aid the "most needy." Those farmers most in need of financial relief eventually benefit through strengthened market prices. A classic "rising tide lifts all boats" analogy.

The ineffectiveness of farm programs is no longer confined to just a parochial, producer welfare domain. The problems of farm policy have spilled over to taxpayers and consumers as well, and their interests in farm policy are equally well defined. Control over the farm policymaking agenda is now a serious political contest with significant long-term implications.

V. TOWARD THE NEXT GENERATION OF FARM POLICY: A SUMMARY OF KEY ISSUES

In May 1983, the Joint Economic Committee (JEC) and its Subcommittee on Agriculture and Transportation began a series of thirteen hearings on the theme "Toward the Next Generation of Farm Policy." The objective of the initiative was to solicit facts and opinions and to generate public thought and debate regarding future farm programs and policy. It was anticipated that this effort would be of assistance to the Administration and the Senate and House Agriculture Committees in formulating future farm legislation, particularly the 1985 farm bill.

The Joint Economic Committee has the authority, tradition, resources and obligation to study the economic condition and prospects of major sectors of the U.S. economy. With agriculture generating 20 percent of this country's gross national product, one-fifth of its jobs, accounting for $1 trillion of assets and making the largest positive contribution to our balance of payments, there is no question that agriculture and its associated industries are major and dominant sectors of the U.S. economy. In addition, the JEC specifically is authorized under the Employment Act of 1946 "to make a continuing study of matters relating to the Economic Report of the President." The 1983 Economic Report of the President emphasized that farm policy and programs are perhaps the most critical determinants of the farm economy.

Between May 19, and June 22, 1983, twenty-nine witnesses appeared before the Committee and Subcommittee during eight Washington hearings. Three of the eight hearings addressed future directions in farm policy. Other hearings focused on the "Consumers' Interest in Farm Policy," "Agricultural Trade Policy," "The Economic Condition and Prospects of Agricultural and Rural Businesses," "Program and Policy Choices in Agricultural Conservation" and "Financing Agriculture in the 1980's." During July, August, and September, regional field hearings were held in Des Moines, Iowa; Sioux Falls, South Dakota; Boise, Idaho; Clarksville, Indiana; and Bangor, Maine. Over 150 witnesses representing 30 States participated in these field hearings. The hearing record is as thought provoking as it is extensive. The record of each hearing has been published and is available at the office of the Joint Economic Committee.

A staff study cannot begin to do justice to the effort and expressed concern of almost two hundred witnesses. Nevertheless, at the risk of omission, misrepresentation, and gross overgeneralization, the following summary of findings is provided.

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Farm Price Protection, Income Maintenance and Supply Control

Farmers, their national organizations and commodity representatives are deeply divided on these issues. Some farm interests, most notably the American Farm Bureau Federation, strongly endorsed a freeze in target prices and advocated Federal programs which would lead to a more market-oriented U.S. agriculture. Representatives of commodity groups, such as livestock, poultry, and soybeans, whose products are not—or are minimally—subject to Federal farm programs generally agreed with the position of the Farm Bureau concerning several key farm program elements. Others—the National Farmers Union, the National Farmers Organization, the American Agricultural Movement, and Women Involved in Farm Economics (WIFE)—forcefully argued against a freeze in target prices and advocated government-mandated supply controls which would raise commodity prices to cost of production or parity levels at which time all government subsidies could be eliminated. Commodity groups, with the exception of the U.S. Durum Growers, appeared to favor this approach as well.

University and consultant farm policy specialists almost unanimously encouraged a freeze or lowering in target prices and farm programs which were more flexible and could be adapted to changing market conditions. Loan rates were considered too high and a constraint to export sales. The accumulation of huge supplies in the Farmer-Owned Reserve was felt to be contrary to its original purpose. Several of these farm policy specialists recommended that strict entry limits be placed on the Reserve to force comsumption rather than encourage long-term storage of commodities.

International Trade

"Fight fire with fire" is perhaps the most accurate way to summarize the vast majority of feelings of farmers and their representatives regarding the use of export subsidies to defend U.S. foreign markets. This opinion was expressed reluctantly and at times apologetically. University and other independent farm specialists, however, questioned the long-term effectiveness of such beggar-thy-neighbor trade policies.

They contended that the cost of such trade practices outweigh potential benefits. With unanimity hearing witnesses, including those of the Administration stated that trade embargoes are counterproductive to the economic interests of the United States.

Many witnesses expressed the realization that the dramatic growth in export sales experienced during the 1970's will, in all likelihood, not continue into the 1980's. This is not to say that the United States should yield its share of any future growth in world agricultural trade. In fact, the viewpoint was expressed on several occasions that U.S. farmers are the most cost-efficient producers of food in the world, and if allowed to compete freely, would greatly expand their share of world agricultural trade.

Conservation

Agriculture's attribute as a renewable resource is in serious jeopardy. Testimony was presented on several occasions describing the rapid deterioration of soil and water quantity and quality. Once prime farmland now is incapable of producing crops. Intensifying fertilization to compensate for a depleting soil base is exhausting much of America's cropland.

Considerable support for "sod-buster" legislation was expressed which would deprive farmers of receiving any government aid associated with vulnerable land broken for cultivation. The idling of 80 million acres under the land-diversion and PIK programs was viewed as a very positive and timely conservation measure. Several witnesses strongly advocated that this is the time for the Government to provide incentives to retire permanently marginally productive and environmentally fragile lands.

While several conservation practices were endorsed and encouraged, such as no-till and terracing, few witnesses expressed optimism that such practices were, or could be, applied in proportion to their need. Depressed income has made the adoption of conservation practices, many of which require substantial capital outlays, very difficult. Consequently, they are viewed as optional or as "luxuries." The point was implied several times that land and water conservation is an excellent example of market failure: today's commodity markets—particularly the export markets—simply are unable to reflect a price which includes the investment costs associated with the long-term maintenance of soil and water quality. Relative to foreign sales, "we're exporting our agricultural heritage" was a commonly used phrase.

Promoting the adoption of conservation practices generally was considered a very legitimate role and obligation of government. Certainly the public has as much at stake in protecting and preserving farmland as it has in protecting wilderness areas, wildlife refuges, scenic waterways and historic sites.

A great deal of support was found for crosscompliance between conservation and government farm-price maintenance and income-maintenance programs. That is, farmers would be required to perform certain conservation practices beyond those associated with cover crops on diverted acres to be eligible for government price and income support payments. Some witnesses, however, objected to anything government mandated and warned that such a requirement could reduce farmer participation in supply control programs.

Credit

The cost and availability of credit was a very sensitive and emotional issue. At stake are thousands of farm family homes, businesses, traditions and lifestyles. As many witnesses felt that cheap government credit was central to the problem as felt subsidized interest rates were justified reparations for poor farm and foreign policy decisions. It was argued that private and public lenders were as much to blame for farmer overexpansion and resultant increased indebtedness as the farmer, and to abandon and wash their hands of the farmer at this time would be unconscionable. Yet

other operators spoke passionately about their sacrifices and struggles to pay off their debts and remain creditworthy. Easy credit encourages overproduction and raises the cost of the land, labor and capital for all farmers. It was contended that government moratoriums on debt payments harm the credit position of all of agriculture.

The Farmers Home Administration (FmHA) came under attack on several fronts. Some witnesses complained that FmHA at times has been insensitive and unknowledgeable about the reasons underlying the causes of individual farm financial failure. Agriculture, particularly the livestock sector, has known economic cycles. To force a foreclosure at the trough of such a cycle is tremendously shortsighted and demonstrates little knowledge of the economic and biological characteristics of the agricultural industry. In addition, another charge was that no recognition has been given by FmHA to the Department of Agriculture's own forecasts showing improved prices and incomes.

Many challenged the funding priorities and methods of FmHA. Farmers, it was perceived, are at the bottom of FmHA's client list, superseded by nonfarm, multimillion-dollar big business projects. Accusations were made that FmHA loans are influenced by political and personal favoritism. While these alleged abusive lending practices have damaged its credibility and unnecessarily jeopardized the Government's farm credit role to the longrun detriment of all agriculture, FmHA still was viewed as vital to the survival of agriculture.

Agricultural Research

The many witnesses addressing the subject unanimously felt that agricultural research was another legitimate and necessary role and obligation of government, State as well as Federal. Research, however, should be focused on the promotion of diversified farming through the development of new crops for new uses and crop utilization research which generates new uses for existing crops. Planting and harvesting machinery and practices which are the least expensive, the least energy intensive and foster conservation, need to be researched further. In addition, the design and manufacture of machinery adaptable to small farming operations has been neglected in recent years. Marketing research, particularly in the area of transportation, should be more strongly supported. Disease and pest control research is essential.

Small Scale and Specialty Farming

Federal price-enhancing and income maintenance commodity programs are export, crop, and output-oriented. Feed grain, wheat, rice and cotton producers received almost 60 percent of total government payments in 1981. About 30 percent was spread among milk, sugar, wool, honey and several miscellaneous commodity programs. Government supported conservation programs accounted for the remaining 10 percent of public farm aid.

Although farms with annual sales of over $100,000 account for only 12 percent of all farms, in 1981 these larger farms received 45 percent of all government payments. At the extremes, farms in the

$500,000 and over sales class received direct government payments of $11,700 per farm, while per farm direct government payments were $67 for the smallest farms with annual sales of less than $2,500.

Some regions of the country are dominated by livestock (including poultry) and specialty crops—products which are not entitled to any direct government price and income assistance. In the Northeast particularly, farmers and their representatives expressed the opinion that small and specialty farming is in jeopardy perhaps due in part to the neglect of Federal farm commodity policy which emphasizes and promotes farm size and selected and largely exported commodities. This clearly is evident in that while the average U.S. Government payment per farm in 1981 was $717, the Government payment to producers in this northeast region was but $74 per farm (excluding conservation programs).

Nowhere during the Joint Economic Committee's field hearings was this government farm program bias more pronounced than at the Northeast regional hearing in Bangor, Maine. At this hearing, witnesses argued for stronger import restrictions on products such as potatoes from Canada and for consideration of marketing orders to control supply more effectively and to improve product quality.

VI. CHOICES IN FARM POLICY [1]

Public policymaking is, by definition, a political process; a participatory process of the resolution of conflicting interests through compromise. The eventual compromise, of course, is influenced by and dependent upon the relative bargaining strengths of the various interests involved in the policy-determination process. Theoretically, this process should yield the optimal policy decision for society as a whole. A public policy decision is due for agriculture in 1985.

The American public has the opportunity to choose from a number and variety of farm policy options. All options, however, will have a common ingredient—government participation and influence in food and fiber production. Yet the ingredient which most materially differentiates the options is also government participation and influence. The central question concerns the type and degree of government involvement. As future farm policy and program options are raised and debated during the next two years, politicians will be hearing predominantly from three voices—farmers, taxpayers and consumers. Society, through the legislative process, will weigh the welfare of farmers, taxpayers and consumers with regard to each policy option.

No attempt is made in this study to catalogue all possible farm policy options or to explore all the pros and cons of those policy options identified. This study should not be considered a comprehensive review of all possible agricultural policies nor should it be considered to represent the farm policy views of the Joint Economic Committee or its individual members. Rather, the purpose is to provide a launching point from which various options must be scrutinized and perhaps considered further. The following discusses the interaction of certain policy options (including no public policy) and the structure of agriculture.

A Free Agriculture

As a hypothetical extreme, "free agriculture" theoretically would respond only to market signals, unencumbered and unsupported by government. There would be no farm or food policy. Supply and demand would dictate the variety, quality and cost of food, commodity price levels and farm income among a thousand other variables. Eventually the structure of production agriculture—the size and ownership/management characteristics, number of farms—would adapt to market forces. Developments beyond this stage are difficult to predict.

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[1] For a more thorough discussion of farm policy options the reader is referred to "The Emerging Economics of Agriculture: Review and Policy Options," prepared for the Joint Economic Committee by the Council for Agricultural Science and Technology, Iowa State University, Ames, Iowa. This study is included as an appendix to this report.

It is evident, however, that over the long run the resources committed to the production of food and fiber will provide to their owners a return equal to their next best alternative use. That is, if agricultural land, labor or capital can be more profitably utilized elsewhere in the economy, those resources will cease to produce and supply food and fiber. Obviously, the most efficient, low cost food producers will realize the highest return from farming and therefore would be the last to exit the industry. Conversely, high cost producers will find market prices too low to sustain a profitable operation, and they will seek employment of their resources elsewhere. The contraction in supply will tend to raise market prices and to justify economically at least the retention of more resources in agriculture than was the case under the lower price level.

Nonetheless, given agriculture's capability to substantially and persistently overproduce for the market, additional resources likely would leave farming. This process would continue until it actually reverses itself: When supplies are reduced too far and prices are too high, and resources flow back into food production. Eventually, a food supply/demand equilibrium is established but not permanently sustained because of agriculture's inherent instability. Price-depressing food surpluses do not exist in a market-clearing economy. At this stage, the food and fiber production industry may pause and count noses—the number of survivors—and evaluate its economic opportunities and legal constraints.

Ideally, from the food industry's perspective, prices could be set at just below the cost to American consumers of importing comparable products. Alternatively, the new agricultural industry in equilibrium may, by consequence or antitrust laws, still be highly competitive, more cost efficient and yet profitable.

Importantly, this extreme reliance on market forces would change dramatically the structure of U.S. agriculture. The industry probably would be substantially smaller both in number of farm operations and in aggregate output; more highly concentrated with at least tendencies to pursue uncompetitive practices; less likely to retain surpluses intentionally for long periods; using capital and labor resources which are less resilient in withstanding unprofitable times and therefore rapidly diverted to alternative uses; and extremely reluctant to have its products used by the Government to pursue social and foreign policy objectives.

Revenue Insurance [2]

Being discussed as one of the more popular alternatives to current commodity programs is farm revenue or income protection insurance. The Congressional Budget Office, the Secretary of Agriculture's Farm Income Protection Insurance Task Force and the Council for Agricultural Science and Technology all have published analyses of farm income/revenue insurance as a possible substitute for, or complement to, current farm programs. In addition, several witnesses before farm policy hearings of the Joint Economic Com-

[2] Substantial portions of this section were extracted from "Alternatives to Current Commodity Programs," by Lyle P. Schertz and Kenneth C. Clayton, U.S. Department of Agriculture.

mittee advocated income insurance as a method to stabilize farm income. The Secretary's Task Force and the Congressional Budget Office both recommended the implementation of pilot programs.

A subsidized revenue insurance program would allow individual producers of crops to select coverage on a specified percentage of their individual normal yield and a price of the commodity for which they wish to be insured. The insurance is essentially for yield losses below selected percentages of yield history for the individual producer. Premiums are, in turn, geared to the percentage of yield protection desired and the price selected by the producer. The present crop insurance program has some features consistent with a revenue insurance approach. Other features are not consistent.

For example, suppose a corn producer picks $2.50 a bushel and the insurance policy calls for protection against shortfalls of yields below 90 bushels per acre. With an actual yield of 70 bushels, the payment would be $50 per acre (20 bushels times $2.50) without regard to the market price for corn. In contrast, the producer would not receive any payment if yield was 90 bushels or more even if the price dropped to $1.25. Thus, while the Federal Crop Insurance Corporation (FCIC) uses commodity prices, there is no insurance of the price unless the yield falls below the insured level. Furthermore, the price protection applies only to that portion of the crop represented by the difference between the insured level and the yield.

Insurance policies could relate to different losses. For example, they could be in terms of:

Insurance against loss of yield at designated/selected prices, similar to the current FCIC program;

Insurance against price shortfalls for designated/selected yields; and

Insurance against shortfalls of value of production (price times production).

The "farm income protection insurance" study called for in the Agriculture and Food Act of 1981 relates to the last of these concepts.

While yields are predictable actuarially for insurance purposes, prices are another matter entirely. Various uncontrollable and largely unpredictable institutions and institutional decisions can dramatically change prices in future markets. For example, a feedback effect of low prices (if they occur) on policy decisions in Washington may exist. Also, administrative reaction to global events may lead to policy changes. For example, the purchase of 60 million tons of wheat in the U.S. market by another country may lead to policies to mitigate the price effect of the purchase. An export embargo is the most obvious of institutional decisions which can have dramatic effects on future commodity prices.

Aside from the ability or inability to anticipate price changes, potential insurers of prices must deal with the extent of independence of losses among those insured. For example, corn yields on a Nebraska farm probably are independent of the corn yields of any Illinois farm. An insuror by writing crop insurance over a wide area can generally avoid risk of widespread production losses.

To promote revenue insurance as a substitute for traditional commodity programs, the public could intervene in several ways. The Government could:

Insure private companies against losses;

Offer subsidies to either the producers who insure or the firms that write the insurance; and

Assume the insuror's role.

Government subsidies may or may not be involved in the latter approach. As an alternative approach, costs could be covered partially or entirely by premiums paid by producers.

Income Insurance

Income insurance, as described here, is a variation of revenue insurance. The primary and critical difference is that while revenue insurance seeks to insure farm revenues (production times price), income insurance seeks to insure a minimum farm family income. This approach has the capability of taking into account off-farm income.

An income protection program may consist of two parts: (1) a guaranteed minimum price which could yield deficiency payments, and (2) a range of insurable price increments above that minimum. The guaranteed minimum price could be set at some legislatively determined level. Farmers then would be given the opportunity to purchase price increments of, for example, 25 cents, 50 cents $1.00 or $1.50 per bushel over and above the guaranteed minimum price.

The Federal Government may desire to subsidize farmers' insurance premiums to encourage participation. While the ultimate cost of the income insurance would be determined by private insurance companies, the Government, for example, could pay 80 percent of the annual premium for the 25 cent increment, 60 percent of the 50 cent increment, 40 percent of the $1.00 increment and 30 percent of the $1.50 increment. To prevent windfall profits from the insurance, the highest subsidized insurable price perhaps should not exceed the national average total cost of production. The level of income insured for an individual farm would be the guaranteed price plus insured price increment (25 cents, 50 cents, etc.) multiplied by the USDA established program yield of the farm.

The program insures both output and price and therefore total farm sales and income. Several professional studies show that farms with gross sales in excess of $200,000 per year can fend adequately for themselves, suggesting that a limit of $200,000 of insurable income may be warranted and desirable.

To further target the program toward full-time commercial farmers, consideration of off-farm income could be included when indemnities are calculated. A payable insurance indemnity therefore would be equal to insured income (farm program yield times farmer-selected insured price) up to some maximum, less realized farm income and off-farm income.

Legislation creating a program of farm income protection insurance as described above would require the Congress to establish:

(1) The guaranteed minimum price;

(2) The range of insured price increment options;

(3) The rates of federal premium subsidy for each insured price increment option; and

(4) A maximum insurable income level.

As envisioned, this income insurance program would be targeted to medium-size farm units whose operators predominantly are dependent upon on-farm earnings. The program may assist in stabilizing the number and size of farms in agriculture at minimum public cost. In addition, revenue and income targets do not distort price signals which are integral and important components of an efficient market.

Tax Credit Sector Income Support Program [3]

A fourth major policy alternative reflects elements of current policy and past proposals such as deficiency payments. The U.S. Government would assure producers as a whole a level of net farm income. However, the farm-related net income levels of individuals would not be assured directly. Price in markets would be free to adjust. Quantities consumed, exported, and stored would reflect market prices and the tax credits associated with the program.

Two major administrative tasks would be involved, to determine annually:

An income payment pool based on the assured level of sector net income and the net income realized by the farm sector from markets. For example, legislation might state: "The U.S. Government will transfer funds (to producers) under this Tax Credit Sector Income Support Program (TCSISP) so that net farm income associated with production and sale of all commodities plus the tax credits associated with this program equals at least $20 billion." Accordingly, an "income payment pool" would be calculated. It would equal the difference between (1) U.S. net farm income realized from the market and influenced by other government programs such as agricultural conservation payments, and (2) the "assured level" of net farm income, $20 billion in this example.

A tax credit per dollar of marketings that Federal income tax filers would apply to their value of farm marketings in preparing their individual income tax returns. A very specific approach for distributing the income payment pool may be as follows: distribute the income payment pool proportionally to the value of marketings of farm commodities with the use of Federal income tax credits.

Suppose that these numbers were:

	Billions
Farm receipts	$160
Farm production costs	148
Net farm income	$12

This information, along with an assumed guaranteed level of $20 billion, would imply an $8 billion income payment pool.

The IRS Form 1040 would be revised to include the calculation of a farm income support tax credit. The tax credit per dollar of farm

[3] See footnote 2, p. 31.

marketings would be announced on January 1 for the previous calendar year. For the above example the credit would be $0.05—the amount that estimated net farm income of all producers was below the assured sector net farm income ($20 billion minus $12 billion) divided by estimated farm receipts ($160 billion). In turn, each individual's tax liability would reflect the calculated tax credit for farm income support. Using the above tax credit per dollar of farm sales, $0.05, a tax credit of $5,000 would result for a Schedule F filer showing marketing of farm products of $100,000. The credit would need to be refundable to allow farmers who pay no taxes to benefit from the program.

This income support alternative, as outlined, calls for distribution of the income payment pool on the basis of market receipts. This need not be the procedure. The pool could be distributed equally to all who file a Schedule F or to all who do not, for that matter. The pool also could be based on net profit from farming reported to IRS in contrast to market receipts. In any event, a farm program dealing with tax credits probably will prorate benefits proportionately. While this implies that all participants get equal treatment in a per dollar basis, large farms naturally would receive a higher absolute benefit amount.

Expenditure of government money for a direct payments program would compete with expenditures for other commodity programs. However, it would not be necessary for administrative reasons to discontinue any of the current government programs that benefit producers before initiating a tax credit sector income support program. The benefits of the other programs could be taken into account in estimating agricultural sector receipts.

A More Market-Oriented Agriculture

What is usually meant by advocates of a more market-oriented agriculture is simply the granting of more flexibility and authority to the Secretary of Agriculture to adjust price and income support levels to changing market conditions. Commodity loans would be lowered to discourage government acquisitions and to promote export sales, and target prices would be lowered to discourage higher cost production. Conversely, loans would be raised to build reserves and target prices raised as an incentive to expand production.

Since loan and target price levels are established and indexed by Congressional mandate it nearly is impossible to respond timely and appropriately to developments in a highly dynamic and competitive market, such as the international grain market. The Secretary of Agriculture, it is argued, has sufficient information available to him to respond rapidly and effectively to changing market and economic conditions in the best interest of the farm sector and the whole U.S. economy as well.

On the other side of the coin, of course, is the concern that once such flexibility and authority is granted, the Secretary of Agriculture may be too easily influenced by nonagricultural administration policy objectives or problems, such as deferring action on declining exports to give attention to rising Federal deficits or fiscal priorities. In addition, the opportunity would be available to phase

out entirely Federal farm price and income supports solely on philosophical grounds, without regard to the long-term outlook for agriculture.

Demand Enhancement

The Government's role under demand enhancement programs would be confined to the promotion of sales and consumption of agricultural products in foreign and domestic markets. If relied on solely, government-sponsored supply control or storage programs would not be employed.

The demand for food and fiber could be enhanced directly and indirectly through a wide variety of government actions, ranging from expanding current programs such as food stamps, school lunches, Food for Peace contributions and export subsidies to price freezes and large scale "dumping" of government-purchased commodities on international markets. Government policies contributing to economic growth and higher real disposable incomes indirectly would improve the demand for agricultural products. Direct economic assistance or indirect financial aid through the International Monetary Fund, Agency for International Development or World Bank to developing countries would improve their capabilities to purchase U.S. agricultural commodities. U.S. foreign policy decisions, such as the sale of military weapons or the granting of other economic or political aid, could be tied to the purchase of U.S. food and fiber. The Government also could perform and/or sponsor research leading to the development of new uses for farm commodities.

The primary problem with demand enhancement programs is its artificial, overstimulative effect on production. Production decisions by farmers give little recognition to the fact that the improvement in demand for their commodities may be largely artificial and very short lived.

Mandatory Government Controls

Proponents of mandatory controls in essence would eliminate the voluntary aspects of current farm programs. Much like marketing orders, a farmer would not be permitted to sell his product unless he participated in supply control. Government-mandated controls would be necessary if farmers failed to join together to limit production themselves. Through effective supply control the market will yield fully compensatory price and farm income levels. As a result, mandatory control advocates contend all farm subsidies and government farm program costs can be eliminated. Government would be empowered to perform as a benevolent monopolist and would delegate to farmers allocated production and marketing quotas.

Given the inelastic nature of the domestic demand for food, mandatory supply controls would yield the desired results if the U.S. consumer (and livestock and poultry producers) can be cut off from other non-U.S. supplies. As it is highly unlikely that these prices, at least over the long run, could be imposed on foreign buyers, the Government would be obliged to purchase at prevailing prices production in excess of domestic needs. The Government at least par-

tially, would offset its purchase costs by selling acquired stock in the export markets or would be free to use the commodities for domestic or foreign humanitarian purposes. The alternative, of course, is to disallow the production of any supplies in excess of domestic requirements plus a safety stock. In this event, approximately one-half of all cropland and presumably one-half or more of all grain farmers would be idled.

A Centrally Planned Agriculture

All food and fiber production and marketing decisions—including prices, wages and returns on investment—are ultimately made within a central planning unit of government. Agriculture, as but one sector of a national economy, would be programed, monitored and, when necessary, modified to ensure its contribution to the progress and welfare of the State. Little, if any, credence is given to the stimulative effect on productivity of ownership, entrepreneurship or profit.

VII. CONCLUSIONS

The evidence, of course, is stacked heavily against anyone who desires to state categorically that traditional commodity programs have failed agriculture. Walter Wilcox reported in 1958 that net farm income for the period 1952 to 1956 would have been at least 28 percent lower without price support programs. Simultaneous but independent studies by others yielded remarkably similar results. These studies indicated an estimated decline in net farm income of from 25 to 40 percent had production restrictions and price supports been eliminated. Other research has found that commodity price support programs reduced price variability for selected crops. These are only examples from a large volume of research efforts almost unanimously extolling the effectiveness of commodity programs during the late 1950's and early 1960's. With the consumer price index for food advancing little more than 1 percent per year from the mid-1950's to the mid-1960's, the impact of commodity programs on consumer prices was of little concern or interest.

Two key developments, both beginning in the mid-1970's, eventually have caused many farm policy analysts to conclude, as Dr. G. Edward Schuh of the University of Minnesota has, that commodity programs have become "demonstrably counterproductive."

The first development was the extreme and rapid internationalization of U.S. agriculture. During the 25-year period from 1947 to 1971, the value of U.S. agricultural exports rose moderately from $4 billion to $7.7 billion. In contrast, during the next ten-year period, 1971 to 1981, the value of U.S. agricultural exports increased almost six-fold. Export sales now account for one-half of crop cash marketings as opposed to 20 percent in 1950. During this same period production agriculture assets grew from $135 billion to over $1 trillion. Traditional commodity programs are incapable of providing a "fair return to farmers" given the size of tneir industry and with the majority of crop-farmer income coming from nondomestic sources. The job simply has become too big and too unmanageable.

The second development was the diminishing influence of the value of farm goods relative to consumer food costs. A central objective of commodity programs is to assure reasonable food prices. But farm value as a percentage of food expenditures has declined from 33 percent to 28 percent since 1972. During the last two years, labor costs have exceeded farm value as a percentage of total food expenditures. As a result, it may make more sense to put the burden and responsibility on labor for moderating food prices than on the farmer. During the last three years, while record food surpluses were being accumulated and the farm value of food increased by 6.5 percent, total food expenditures increased almost 25 percent.

These developments give evidence that the two objectives most often attributed to commodity programs—to yield a fair return to farmers and reasonable prices to consumers—are unachievable in today's agricultural and food environment. Congressional and Administration leaders must develop and implement the next generation of farm policy.

During the so-called banner years of U.S. agriculture—the decade of the 1970's—almost one-half of all farmers lost money, year in and year out. In fact, in 1973, the best farm net income year on record, 39 percent of all U.S. farms showed a loss. According to an Internal Revenue Service analysis of farm income tax returns in 1976, over one-half of those returns showed financial losses from farming. As a result, the average farm income per farm in 1976 was a dismal $1,268. However, when off-farm income is added to the picture, average adjusted gross income per farm in 1976 was $14,500 and the adjusted gross income for all farms reporting losses was $13,600.

There were 12,000 farm tax returns that showed farm operation losses of $50,000 or more. These same returns showed an average off-farm income of $122,000—the larger the off-farm income, the larger the farm losses. The average adjusted gross income of all farms with losses exceeded the adjusted gross income of 75 percent of all farms reporting profits in 1976.

In another study, Dr. Luther Tweeten of Oklahoma State University has shown that in 1981---a year of depression-level real net farm income—almost 70 percent of all agricultural output was produced under profitable conditions. Dr. Tweeten's data reveal that farms with gross sales of over $100,000 required a parity ratio of 59 to cover all costs in 1981, when the parity ratio was actually 61. During that year 87 percent of all output would have been produced at a profit at a parity ratio of something less than 64.

The farm problem appears not to be the profitability of farming, but the profitability of farms. Agriculture's profitable output in 1981 was produced by only 12 percent of the farms. However, on average, small-scale farms with sales of less than $10,000 had a combined on and off-farm income of over $20,000 in 1981, which was near the national household income average. These small-scale farms account for almost one-half of all farms.

The above seems to suggest, first, food production in this country is not in financial jeopardy, and second, since 12 percent of all farms are profitable and since 50 percent of all farms while unprofitable, are sustained through substantial off-farm income, it may be concluded that six out of ten farmers are not largely dependent on public income for support. Said another way, four out of ten farmers may need and deserve greater assistance than is provided through the current Federal farm program. The solution to the farm problem and the focus of the next generation of farm policy should be what kind and degree of public support is needed to assist some 900,000 farm families who find themselves in agriculture's transition zone—either reluctant or unable to generate sufficient off-farm income or lacking the financial resources to achieve a profitable-sized farm unit.

These farm families who are experiencing the financial, professional and social pressures of transition are most likely the core of

the farm problem. Furthermore, the volume-progressive government payment structure of traditional commodity programs is worse than useless to medium-sized farms. These farmers will suffer greatly if the public's current disenchantment with farm programs results in less Federal assistance; large successful farms merely will be denied the windfall to which they currently are entitled.

A critical point must be made at this juncture—an observation which may suggest a possible approach to remedy the farm problem as defined in this study. The success of U.S. production agriculture can be credited largely to the family structure of farming. Few labor/management units have proven more innovative, productive and resilient.

The family farm concept is sacrosanct and its promotion and justification universal and timeless. Unfortunately, government income support programs, particularly the recent payment-in-kind program, have jeopardized the concept. There have been numerous reports in the popular press of individual farmers, land speculators and nonfarm corporations receiving payment-in-kind benefits of half a million dollars, others a million dollars and much more. A $500,000 subsidy to a family with perhaps $4 to $5 million of assets (most of which is likely to be owner equity) is destructive to the interests of agriculture.

Improvements in farm income can come only from one of two sources: the market or the Federal Treasury. Higher public costs for farm programs likely is not a realistic option; but then neither is a free of wholly market-oriented U.S. agriculture.

Given agriculture's inherent characteristics—production timelags, perishability and inelastic domestic demands—the market will never yield fully compensatory prices for all U.S. farmers. But, according to studies, it can and has produced prices which are profitable for most of the volume of commodities grown in this country. However, these prices also are unprofitable for a vast majority of farmers. That is, U.S. production agriculture can compete in export markets but it naturally will "sell" to the highest bidder. The U.S. Government itself becomes the high bidder through its loan program. As a result some farmers receive a windfall, others break even, but the vast majority will continue to suffer losses. In addition, and perhaps equally important, other world food producers and their governments escape the full competitive clout of American agriculture.

A largely unrecognized and certainly undesirable consequence of current farm programs has been to protect foreign food producers who are less efficient, from full competition with efficient U.S. food producers, at tremendous cost to U.S. taxpayers. Because of these ill-effects continuation of such policies may be the road to U.S. agricultural oblivion, and therefore future generations of farmers are jeopardized. The domestic and global economic, social and political consequences of an America without agriculture are beyond comprehension.

Federal price and income maintenance commodity programs, for the most part, are export-, crop-, and output-oriented. Hundreds of thousands of family farms produce specialty commodities mostly for domestic consumption, and are financially distressed. Yet they re-

ceive little public attention, let alone assistance. There may be substantial economic and social benefits, of a "smaller farm policy" which is more farmer-oriented and less volume- and commodity-biased.

The next generation of farm policy may better serve America by unleashing U.S. agriculture's present competitiveness and future potential, target public support, preserving its natural resource base and family structure, and confidently and aggressively pursuing new opportunities. At the global level, as well as domestic, U.S. agriculture is as much an obligation as it is an opportunity.

APPENDIX

CAST

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THE EMERGING ECONOMICS OF AGRICULTURE:

Review and Policy Options

Council for Agricultural Science and Technology

Report No. 98

September 1983

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Review and Policy Options

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Report No. 98

September 1983

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Foreword

The CAST Board of Directors decided at its meeting in July 1982 to prepare a report on the impact of alternative public policies on agriculture. To provide an aid to decision-making on organizing and starting the project, the writer was directed to seek the counsel of persons knowledgeable in the field.

Several economists specializing in agricultural policy were consulted, and it was learned that the Joint Economic Committee of the Congress was preparing a report on the same subject or one closely related. As a result, contact was made with Dr. Robert Tosterud, who was providing leadership for this work as a member of the staff of the Joint Economic Committee. Dr. Tosterud strongly urged that CAST proceed with preparation of the proposed report because it would provide an independent view of the subject.

The sense of the comments from the various experts, including Dr. Tosterud, was sent to members of the CAST Executive Committee as a basis for discussion in the meeting of the Committee in October. The Executive Committee decided to delay action on the CAST project until it was known what the report by the Joint Economic Committee had to say.

Accordingly, Dr. Tosterud was contacted again. The Joint Economic Committee study was nearing completion, and he was able to send a copy of the printed document to each member of the CAST Board of Directors for study before the meeting of the Board in March 1983. The Board met in Arlington, Virginia, and Dr. Tosterud was invited to attend and to address the Board. He discussed the importance of the subject and brought with him a letter signed by Senators Jepsen and Abdnor and Congressman Hamilton of the Joint Economic Committee, requesting that CAST review the Committee document and submit comments on it as an aid in policy considerations to begin in the fall. On the following day, the Board acted to approve the development of a task force to prepare the review that was requested. The previously approved CAST project on the impact of alternative public policies on agriculture was retained, but it was decided not to start the project until more was known about the outcome of the work on the review project. The CAST project eventually was dropped at the meeting of the Board in July 1983, by which time the direction being taken by the review task force was known, because there would be too much overlapping of subject matter.

Nominations for participants in the review task force were obtained by mail directly following the meeting of the CAST Board of Directors in March, and the task force was developed promptly. The task force chairman prepared a tentative outline of the report, discussed it with certain members of the task force in the policy area, and then assigned parts of the subject matter to the various persons for writing. He arranged a meeting of these members of the group in Chicago in May 1983. Most of the writing had been done by that time, and the participants reviewed the various contributions and reached a consensus on the subject matter.

After the remaining written contributions were received, the task force chairman assembled a draft that was sent to members of the writing group for review and comments. On the basis of the comments received, another draft was prepared, and this one was sent to all members of the task force for their input. Concurrently, the draft was sent to the CAST Editorial Review Committee and to Ralston J. Graham, who served as an outside editor.

The contributions from these various sources were incorporated in the manuscript in the CAST headquarters office with the aid of the task force chairman, and a galley proof then was prepared and transmitted to task force members and the CAST Executive Committee for final review and approval. The needed corrections were incorporated in the galley proof to prepare the final copy.

On behalf of CAST, I thank the participants, who gave of their time and talents to prepare this report as a contribution of the scientific community to public understanding. I thank also the employers of the participants, who made the time of the participants available at no cost to CAST. The members of CAST deserve special recognition because the unrestricted contributions they have made in support of the work of CAST have financed the preparation of the report.

This report is being distributed to certain members of Congress and the U.S. Department of Agriculture, to media personnel who have asked to receive CAST publications, and to institutional members of CAST. Individual members may receive a copy upon request. The report may be republished or reproduced in its entirety without permission. If republished, credit to the authors and CAST would be appreciated.

Charles A. Black
Executive Vice President
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Contents

Summary 1

Overview 2

- The current situation 2
- Commodity program alternatives 2
- Concluding comments 3

Introduction 5

The economic setting 5

- Changing opportunities 5
- Changing problems 6
- Relating farm size structure to problems and opportunities 7

Policy options 9

Policies other than for commodities 9

- Fiscal-monetary policy 9
- Trade policy 9
- Research, extension, and information systems 10
- Taxes and credit 10
- Other policies 10

Commodity policy alternatives 10

- A supplemented private sector 11
  - The general alternative of greater reliance upon markets 11
  - Specific alternatives to bring greater reliance upon markets 12
- Direct or compensatory payments 14
  - Experience 14
  - Incidence of benefits and costs 15
  - Other modifications of payment programs 16
  - Summary of advantages and disadvantages 16
- Demand and revenue expansion 17
  - Efforts to increase demand 17

Efforts to increase revenue with a given demand 19

Referendum-quota approach 21

Current mandatory-control programs 21
Potential of mandatory controls for other crops 22
Evaluation of mandatory controls 23

Dairy policy 24

Programs and objectives 24
Achievement of objectives 24
Reasons for low achievement 25
Policy options 25
Summary 27

Modification of existing programs 27

Target prices 28
Modifications in target prices 28
Commodity storage programs 29
Modifications in commodity storage programs 30
Production controls 30
Modifications in current programs to reduce Treasury costs 31

Alternative agriculture options 32

Smaller farms 33
Soil conservation 33
Reduced use of off-farm production inputs 34
Beginning and distressed farmers 35
Conclusion 35

Other approaches 35

References 36

Appendix: Critical evaluation of Joint Economic Committee Staff Report 37

Summary

Agriculture in the United States is evolving from a way of life into a large-scale, regulated business. In 1981, agricultural production units were comprised of 112,000 large farms, which produced 49% of the U.S. farm output; 582,000 medium-size farms, which produced 38% of the output; and 1,742,000 small farms, which produced 13% of the output. Many of the operators of small farms are engaged in part-time farming by choice to follow a valued way of life paid for out of off-farm income. In 1981, the net income from farming on the small farms averaged $663.

The policy of providing public support for agricultural research and extension has made possible much of the gain in production efficiency that underlies the current ability of U.S. farmers to compete in world markets. The greater responsiveness of demand for agricultural products to change in price that is associated with export of a substantial portion of U.S. farm production allows farmers to reap a larger share of the benefits from improved productivity than they could without such markets. Approximately one-third of U.S. production now is exported.

High interest rates and export embargoes are examples of nonagricultural policies that have decreased agriculture's ability to compete in world markets. U.S. agricultural policies also have often maintained world prices at an artificially high level that has protected both U.S. and world farmers while encouraging farmers in other countries to produce for markets we could otherwise have supplied.

Criticism has been directed at past commodity programs that have attempted to serve the dual objectives of making markets operate more efficiently to stabilize food supplies and prices and of raising incomes of low-income families. These programs are said to have been ineffective in serving either objective.

A case can be made that commodity programs either are unneeded for many large farms or inhibit them from competing in world markets. For small farms, commodity programs provide few benefits and are not needed if off-farm income is substantial.

Chronically low incomes and excess labor are less important problems now than a half century ago when government farm programs were started. Instability, however, persists as a principal economic problem, and it is likely to become increasingly important in the future. Instability and cash flow are the two most important current economic problems in U.S. agriculture. These problems will not be solved by current policies and programs.

Groups most vulnerable to instability include beginning operators, heavily indebted full-time farmers, and owner-operators of expanding, full-time, medium-size farms. Existing commodity programs retained because they serve medium-size farms do not address the needs of these farms efficiently.

The report emphasizes the broadly applicable, producer-related aspects of crop policies and provides background for considering various agricultural policy options in a systematic manner. The related impacts of crop policies on the animal and agricultural-supply industries, although in some instances very significant (the PIK program is the most important current example), are not considered except where they are an integral part of the policy options.

Four policy options are described that range from a relatively free market to a system of mandatory controls: (1) *A supplemented private sector* — stabilizing agriculture without commodity programs but with public measures to provide income insurance, to assist the private sector to hold commodity reserves, or to strengthen forward pricing markets. (This option is considered as close to a completely free market as is likely to be acceptable.) (2) *Direct payments* without simultaneous production controls which, in principle, allow farmers to be price-competitive in foreign markets while cutting government administrative costs and providing income protection focused on family farmers. (3) *Demand expansion*, which in theory could bring farmers an adequate return from the market while removing the burden of administrative and other expenses of government control. (4) *The referendum-quota system*, which involves controls that are mandatory for all farmers to limit production (and thus raise prices) if accepted by vote of a specified majority of farmers.

An additional section is devoted to dairy policy because of the unique economic problems and opportunities requiring special attention. Another section is devoted to modification of existing policies. And a third additional section reviews "alternative agriculture" options, in which attention is given to smaller farms, soil conservation, reduced use of off-farm production inputs, and beginning and distressed farmers.

The role of placing appropriate weights on the advantages and disadvantages listed for the various options is for policy participants, including farmers, the agricultural community at large, consumers, and policy makers at all levels. That is where the hard choices must be confronted and compromises must be made. Three principles must be kept in mind to arrive at the best policies: (1) Additional farm income can come from taxpayers, consumers, or improved farming efficiency. (2) Domestic policies must be viewed in the context of global markets and policies. (3) Agriculture is heterogeneous, and policies that are appropriate for one segment may be inappropriate for another.

Overview

The Current Situation

The emerging economics of food and agriculture raises a number of issues with implications for public policy. The capability and need for the U.S. farming industry to compete in international markets is great. Larger farms, which account for half of all farm output, and many medium-size farms are equipped to meet the international challenge. Providing our farmers who possess the will and capacity with the freedom to compete in world markets is one possible objective for public policy.

Instead, this nation frequently has pursued a policy of encouraging farmers in other countries. In the words of the Joint Economic Committee staff report (Tosterud and Jahr, 1983), "Foreign competitors appear to be ready and able to capitalize on any production disincentives employed in the U.S." The report adds that "U.S. farm policy, particularly its emphasis on maintaining world price supports above potentially market-clearing prices has, in effect, protected world farmers and their governments from feeling the full clout of our competitiveness." Elsewhere the staff report states that "World competition has brought into question the effectiveness of unilateral production controls" such as those used in the United States.

Instability in the economic and political environment surrounding agriculture appears to be increasing. In some ways, the farming industry is more vulnerable to unexpected unfavorable events than it was in the past.

But in other ways the farming industry has demonstrated and continues to demonstrate ingenuity in adapting to uncertainty and instability. Many farm operators realize that risk "goes with the territory." Many large farms and small part-time farms can fend for themselves quite well in an unstable world. For many large farms, a case can be made that commodity programs either are unneeded or inhibit them from competing in international markets. For small farms, commodity programs provide few benefits and are not needed on farms with substantial off-farm income.

Selected public measures to reduce the risk in farming may benefit not only farmers but also society as a whole in an international food policy. One example is public measures to improve the performance of forward markets. Another example is the use of commodity buffer stock reserves.

Many farmers are better able to cope with instability than ever before, but certain groups are especially vulnerable. These include beginning operators, full-time farmers who are heavily indebted, and owner-operators of expanding, full-time, medium-size farms. For medium-size farms the problem is not so much inefficiency as it is cash-flow difficulties associated with inflation, high real interest rates, and life-cycle problems of financing the farm operation. Without special assistance from parents or other relatives to establish young people on such farms, farms within this size range will be subjected to increasing economic pressure. Existing programs retained because they serve medium-size farms have low target efficiency as measured by the high government costs of transferring a dollar to the intended beneficiaries. The intent here is not to rule out the public role in maintaining viability of mid-size farms through commodity programs, but rather to note the need to decide whether this is a socially desirable objective and, if so, to explore options that more nearly target program benefits on those with greatest needs.

Commodity Program Alternatives

Computer models can provide detailed quantitative predictions of economic outcomes under various commodity program alternatives. This report provides no such detail, in part because the task force was not charged with this responsibility. But details are omitted also to focus attention on the broader issues or goals served by each option. Policy agreement is limited, not just by disagreement over the purely economic implications, but also by the different weights people place on goals and objectives, such as freedom of decision-making, security, justice, and personal values associated with receiving income from markets rather than from the government.

The information presented in the report provides background for considering various options in a systematic manner. But the role of placing appropriate weights on the advantages and disadvantages of each option is for policy participants, including farmers, the agricultural community at large, consumers, and policy makers at all levels. That is where hard choices must be confronted and compromises must be made.

Some contend that past commodity programs attempting to serve two objectives — (1) making markets operate more efficiently to stabilize food supplies and prices and (2) raising incomes of low-income farm families — have in fact not effectively served either objective. One approach would separate these objectives by a negative income tax or related income-maintenance program to assist low-income, low-wealth families in both the farm and nonfarm sectors.

The other objective of stabilization could be served by *a supplemented private sector approach* to correct market failure with minimum government intervention. A supplemented market approach would not feature price

supports or supply control but would employ government assistance to help private markets stabilize supplies through storage, through improved forward markets, and/or through subsidized private insurance of gross farm receipts.

The *direct-payments approach* without supply control also could allow freedom in production and marketing decisions. Structural objectives encouraging the family farmer could be furthered and governmental costs could be held down by payment limitations. Because large farms account for a sizable share of farm output, payment limitations would not be feasible with programs that rely on acreage diversion to control production and raise market prices. Special effort would be needed to avoid incentives provided by direct payments that would increase output and lower commodity prices.

The *demand- and revenue-expansion approach* also could allow market-clearing pricing and freedom in production and marketing decisions. Although numerous opportunities exist to expand markets, many such opportunities do not provide benefits in excess of costs. Demand and revenue expansion is primarily a long-term approach that, while useful, does not solve shorter-term farm problems of instability and cash flow.

Farm income could be raised and stabilized with the *referendum-quota (mandatory controls) approach* at little government cost. But the social cost of higher food prices and foregone export earnings would be high. The approach presents formidable problems of assuring compliance and idling resources which could be producing something of value. Although idling of resources is practiced continually by industries and labor, the problems would be greater with agriculture because of its decentralization. Rigidities and inefficiencies would be considerable, and they could persist because such programs would tend to continue after the need for them had passed.

The momentum of current programs coupled with disadvantages of alternatives is viewed by many as reason enough to salvage current legislation through careful modification. Options discussed in the *modification-of-existing-programs approach* include changes in loan and target prices, a maximum limit on the Farmer-Owned Reserve, and reduction in program slippage. The last modification would divert more production and add more to farm income per dollar of program-diversion payments. This modification to reduce program cost would run the risk of pricing commodities out of foreign markets.

The current dairy program provides price supports without production controls or bases. As with other farm commodities, some farm income gains would be possible from programs to expand dairy product demand and sales. But the two basic *dairy program* approaches to eliminate surpluses and reduce government costs are either to (1) support prices and control supplies with a mandatory program or voluntary paid-diversion program or (2) allow prices to fall to market-clearing levels. Something of a compromise is offered by a two-price plan, with a base quota and a higher price established by the market-order system (perhaps only on Class I milk for fluid consumption). Other milk uses would have no controls, bases, or price supports. The producer would not receive a blend price but would receive the higher administered price on base output and the market price on additional output. Other options for dairy production are presented in the body of the report.

Some are of the opinion that current commodity programs inadequately address a number of needs for preserving small family farms, conserving soil, reducing the use of off-farm production inputs, and aiding beginning or distressed farmers. Accordingly, the *alternative agriculture options* address these concerns. The options include payment limitations, revisions of commodity program payment formulas to promote soil conservation and less use of off-farm production inputs, and special measures to aid beginning and distressed farmers. Commodity programs, however, are blunt instruments for meeting special needs — other measures directed more specifically toward needs may be required if judged worthy by those who make policy decisions.

Concluding Comments

Several principles need to be kept in mind when judging alternatives. One is that additional farm income will not come out of marketing margins but will come from taxpayers, consumers, or improved farming efficiency. Investments in research and extension to improve farming technology, management, and marketing contribute to efficiency gains, and they benefit the whole population more than they benefit farmers. Also efforts to promote and facilitate international trade contribute to the efficiency of markets. Science can help reduce farming instability, but biological processes of nature set limits upon the extent to which instability can be reduced at favorable benefit-cost ratios.

A second principle is that problems and opportunities for food and agriculture cannot be viewed solely in terms of commodity programs but rather must be viewed in the context of global markets and policies. Progress in alleviating farm cash-flow and instability problems is possible with improvements in monetary-fiscal and trade policies. Tax and credit policies play an important role in determining farm structure as apparent in farm size, numbers, tenure arrangements, and legal organization. Neither commodity programs alone nor markets alone resolve problems of providing adequate information systems, conservation of natural resources, and development of human resources for a sustainable agriculture and food system.

The general alternatives considered in separate

sections of the report are treated independently, but they could be combined in eclectic form. For example, nonrecourse-loan and production-control features could be removed and the target price retained. Deficiency payments would be made on the difference between the target price and market price on the domestic share (about two-thirds) of program production. Payments could be limited to $25,000 per recipient farm operator to reduce program costs. The Farmer-Owned Reserve might be retained with a maximum amount permitted for each commodity — in the case of wheat, for example, at say 700 million bushels with appropriate release price and acquisition price to obtain stocks as needed directly from producers. Stocks currently in excess of needs might be disposed of on a one-time basis by government subsidy in gasohol or other uses in a transition program designed to minimize the impact on farmers of current excess capacity accumulated under past programs. Thus, incomes of farms and food supplies would be buffered, but market prices would restrain output while allowing farmers to compete in domestic and international markets.

Another eclectic alternative is a combination of price insurance and direct payments patterned after a program used in Canada. Farmers would receive a cash payment per unit of crop equal to the shortfall of market price in the current year below a seven-year moving-average market price (with the highest and lowest year dropped from the average). One-third of the payment would be from funds paid into a pool by farmers when market prices exceed the moving average. The remaining two-thirds of the shortfall would be paid by the government. This alternative has shortcomings, including a tendency to encourage excess production. Hence, the direct payments might need to be converted into a paid-diversion program when stocks are excessive.

Finally, policies must recognize the heterogeneous configuration of agriculture. Programs to serve large farms will not necessarily serve small farms; programs to serve domestic agriculture will not necessarily serve export agriculture; and programs to serve tobacco farmers will not necessarily serve corn farmers.

Introduction

Commodity programs of the past half-century have remained similar in structure, changing mainly just in style and emphasis. Meanwhile, the politico-economic structure of agriculture and the institutions surrounding it have been evolving. In fact, the structure of the farming industry today bears little resemblance to that in 1933 when the first comprehensive farm commodity programs originated.

Periodically, it is well to reappraise public policy options in the light of emerging economic reality. Within that context, the Subcommittee on Agricultural Policy of the Joint Economic Committee of the U.S. Congress a quarter century ago conducted a study, "Policy for Commercial Agriculture," which now is recognized as classic if not prescient. Within that tradition, Drs. Robert Tosterud and Dale Jahr prepared "The Changing Economics of Agriculture: Challenge and Preparation for the 1980's," a staff study published in 1983 for the Subcommittee on Agriculture and Transportation of the Joint Economic Committee. This staff study traced the economic development of agriculture over the 25 years preceding 1983, and benefited from extensive hearings held by the Subcommittee chaired by Senator James Abdnor.

One objective of the task force that prepared this CAST report was to review and comment on the Joint Economic Committee staff report. The task force has integrated the staff report findings with additional observations to form a more comprehensive statement of critical elements in the economic setting of agriculture. (The Appendix to this report examines critically the Joint Economic Committee staff report.) A second objective was to examine policy options in light of the emerging economic environment of agriculture. Major parts of this report address these objectives.

The Economic Setting

"The Changing Economics of Agriculture" (hereafter often referred to as "the staff report" or simply as "the report" for convenience) notes numerous important changes in the economics of agriculture. This section summarizes and supplements the report to provide a more comprehensive overview and setting for interpreting public policy options. Emphasis is on the highlights of changing economic opportunities and problems in American agriculture that influence public policy choices.

Changing Opportunities

Changes in the characteristics of demand, supply, and productivity have enhanced the capabilities of agriculture to compete in international markets. We perceive several significant changes.

First, the demand for farm output is becoming more responsive to price. The staff report uses the term "internationalization of U.S. agriculture" to refer to the growing share of farm output exported and, hence, to the increasing influence on American agriculture of developments outside our borders. Because world export prices for major farm products tend to move with U.S. prices, higher U.S. prices encourage foreign output, restrain foreign demand, and reduce our exports. The response of demand quantity to price in domestic markets continues to be low, but the increasing share of farm output exported translates into greater demand-response of aggregate U.S. farm output to price.

Our comparative advantage in production, coupled with greater responsiveness of demand quantity to price than in previous years, strengthens the case for being price-competitive in world markets. The greater percentage absolute change in the quantity purchased in response to a 1 percent absolute change in price (known as the price-elasticity of demand) associated with greater exports implies more gain to producers from adopting improved technology. The higher elasticity of demand also implies less instability in domestic prices engendered by shocks to supply-quantity and less gain to domestic producers from supply controls.

Second, the supply of farm output in the aggregate is becoming more responsive to the prices farmers receive for their products and pay for their inputs. With over half of their production inputs purchased from the nonfarm sector and with internally supplied labor and land becoming relatively less important, farmers have more opportunity than in former decades to adjust output to the prices they must pay for their production inputs or the prices they receive for their products. Farm labor, land, and specialized durable capital tend to be somewhat fixed in farming in the short run and respond only slowly over time to commodity price changes. Fertilizers, pesticides, and other purchased production inputs are more readily adjusted in response to prices. They strongly influence output and thus enhance the sensitivity of farm output to price. An increasing elasticity of supply means that producers

have greater capacity to absorb and adjust to shocks to the food system arising from weather, government action, or other sources at home or abroad.

Third, productivity advances have enhanced the capability of U.S. agriculture to compete in world markets. An average unit of farm production input supplied 2.5 times as much output in 1981 as in 1933. Improvements in transportation, communications, and marketing processes in general have raised the efficiency with which farm products move from the farm gate to consumers at home and abroad. These changes in production and marketing efficiency have enabled farmers to achieve rates of return and income on a par with those in other sectors at lower real farm commodity prices than in earlier times. With the aid of input supply and marketing firms, as well as public research, teaching, and extension, U.S. farmers have increased their comparative advantage in world trade. That basic comparative advantage, however, is sometimes obscured when, as at present, the dollar has a relatively high value in international markets.

Changing Problems

Some of the problems of agriculture, such as chronic, sector-wide low income and excess labor, have become less severe than in earlier decades, while problems of cash flow are more severe. The instability problem persists, however.

A principal economic problem of food and agriculture in the future is likely to be income instability. Major farm commodity programs were initiated a half century ago when the farming sector as a whole had low income per capita and low rates of return on resources relative to other sectors. Progress in alleviating this condition has been slow but steady, so that income instability is now a more important problem than chronically low farm income. Since at least 1965, rates of return on farm resources have averaged as high as if not higher than rates of return on resources in the nonfarm sector (U.S. Department of Agriculture, 1981, p. 51).

Although demand and supply elasticities appear to be increasing, they are inelastic in the short run. Thus a change in quantity arising either from the supply side (due, for example, to domestic weather) or the demand side (due, for example, to export) tends to cause even larger changes in price.

Farming has been characterized by periods of excess demand and high prices alternating with periods of excess production and low prices. Such periods, especially those of low prices, sometimes have extended for several years. At times, the inherent instability of agricultural incomes caused by forces of nature and economic and political processes has been masked by government support programs. Chronic surplus is unlikely to dominate agriculture during the remainder of this century unless price supports are set high. The most likely future scenario is one of sporadic and largely unpredictable periods of sometimes favorable and sometimes unfavorable economic conditions (Tweeten, 1983a). Public policy for agriculture must address this problem of instability.

Some price and income variation is essential to bring efficient allocations in a well-functioning dynamic economy. But income instability often has been excessive, creating opportunities to reduce instability with public and private measures providing benefits in excess of costs.

Instability in the economic environment surrounding agriculture is high and probably is increasing. The main source of increasing economic instability is the growing overall share of highly volatile export demand for farm output. Export instability comes not only from unpredictable weather abroad but also from economic and political shocks. The latter can originate at home from, for example, export embargoes, or abroad from, for example, policies of the European Community and of centrally planned countries.

One source of domestic economic instability in agriculture is erratic monetary-fiscal policy. Such policy now influences the farming industry more through credit and other input supplies than through domestic output demand.[1] Changes in domestic income and employment no longer markedly influence real demand for farm output.[2] But real input prices, notably interest rates, are especially sensitive to unpredictable changes in monetary and fiscal policy. Variable mortgage interest rates, like flexible exchange rates, probably add to short-term economic instability. Off-farm income, upon which farmers depend for nearly two-thirds of their livelihood, is sensitive to monetary-fiscal policy influencing earnings of farm people employed in nonfarm industries. Monetary-fiscal policies also influence domestic agriculture through international linkages. The currently depressed U.S. economy and high real interest rates reduce U.S. imports of merchandise,

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[1]Other things equal, prices received by farmers on an annual basis tend to change proportionally with the general price level, while prices paid by farmers tend to change more than proportionally to the general price level; this causes real farm-price reductions and a cost-price squeeze in times of accelerating national inflation (Tweeten, 1983b). Price fluctuations attributed to national monetary-fiscal policy differ among commodities and within years, contributing to uncertainty and instability for farmers.

[2]The domestic income elasticity of demand for farm output in the aggregate is very low, although it is much higher for selected individual commodities, such as beef. Unemployment insurance, food stamps, and other programs buffer some of the impact of unemployment on the demand for food.

raise the value of the dollar abroad, aggravate financial problems of foreign countries, and reduce U.S. farm exports.

A second major economic problem of commercial farmers is cash flow. Even though real rates of return on farming resources, including real capital gains, may be favorable in the long run, current cash inflow for many indebted farmers is inadequate to cover current cash expenses. The problem is aggravated by instability of income, but it has other basic causes.

The ratio of cash costs to receipts has increased for the farming industry and is especially high on large farms. Some cash costs for purchased operating inputs can be varied by purchasing more or less fertilizer and pesticides, for example, but many such costs are committed early in the production period before product market prices are known. Other cash costs cannot be postponed easily. Examples of the latter are cash for servicing debt and for paying family living expenses. In former times when a large share of their resources was fully owned land and labor, farm families could "tighten their belts" to weather inclement economic circumstances. Now commercial farmers have fewer opportunities to reduce cash outlays while awaiting better times.

Cash-flow and cost-price problems associated with inflation and high real interest rates increase debt service costs relative to net income and land earnings. Rates of return on farming resources may be favorable in the long term, but inflation raises immediate costs and defers returns.[3] Much of the return is capital gain realized only when durable assets are sold.

The debt-equity ratio of farmers has increased. The debt-equity ratio is low for the farming industry as a whole, but it is high for many farmers who entered or expanded in the 1970s.

These factors, coupled with rising asset requirements for an economic unit and more lax policies of lending institutions in the 1970s, left many farmers financially vulnerable to economic setbacks in the 1980s. Public policy has attempted, with mixed success, to reduce uncertainty by controlling production and thereby maintaining farm prices and income.

Commodity programs emphasizing voluntary production controls are becoming more costly and less able to reduce farm output. Attempts to control production by restricting land alone have become less successful in recent years because purchased capital and management now substitute with increasing success for land. By program design, by loose administration, or by farmers' ingenuity, supply-control programs have permitted more and more "slippage." Production can be reduced despite slippage, but at substantial cost to the U.S. public. Commodity program outlays estimated to total over $21 billion in 1983 are of particular concern in an era of budget stringency. Alternatives to voluntary acreage controls need to be examined.

Excess labor in agriculture is no longer a serious problem, in part due to the integration of farm and nonfarm input markets. Most of the unneeded farm workers desiring employment elsewhere have left farming. To be sure, more operator and family labor than needed is on farms, but a growing proportion is engaged in part-time farming by choice to enjoy a valued way of life paid for out of off-farm income.

The nation faces no threat of too few farmers or of inadequate numbers of beginning farmers in the foreseeable future. Separation of ownership from operation of farms has occurred slowly and likely will continue. For many family-farm operators, getting started in farming or expanding to a unit of economic size requires access to rented land. It is increasingly unrealistic to expect farming units of economic size required in future decades to be fully owned within the 30- to 40-year farming period of typical family-farm operators. This means that alternatives to the traditional equity- and debt-financing instruments must be developed and used. Most operators of family farms will have to rely upon equity from parents, off-farm income, farmland rental, and/or concessional credit to get a foothold in farming. These strategies must be used sufficiently to ensure having a new generation of farm operators.

Relating Farm Size-Structure to Problems and Opportunities

Changes in the size-structure of the farming industry have made the industry more able to compete in international markets. Public policy needs vary among farms because economic problems and opportunities vary among farms. The heterogeneous economic structure of agriculture cannot be documented adequately here, but data in Table 1 provide some clues. Farming is increasingly dominated in sales by large farms (sales over $200,000 per year) and in numbers by small farms. Numbers of small, full-time farms have sharply diminished.

In response to an unstable economic environment, cash-flow problems, and other factors, farmers have

[3]To illustrate, in the absence of inflation the rate of return on farmland, which comprises 80 percent of farm assets, could be expected to average about 4 percent. The mortgage interest rate would be similar in magnitude, creating no cash-flow problems on a perpetual mortgage. If the inflation rate is 9 percent, the total rate of return on farmland would be expected to average 13 percent and mortgage interest rate 12 percent. The cash-flow problem arises in the presence of inflation because the current farmland return is expected to average 4 percent as under no inflation compared with the current mortgage interest rate of 12 percent. The difference between the total return of 13 percent and the current return of 4 percent is mostly capital gain, which is unrealized until the land is sold (Tweeten, 1981b).

Table 1. Selected Characteristics of Farms by Volume of Sales in 1981[a]

	Large farms (Sales $200,000 and over)	Medium farms (Sales $40,000 to $199,999)	Small farms (Sales under $40,000)	All farms
NUMBERS				
Number of farms	112,000	582,000	1,742,000	2,436,000
(Percent of all farms)	(4.6)	(23.9)	(71.5)	(100.0)
(Percent of all sales)	(49.3)	(38.1)	(12.6)	(100.0)
		Dollars per farm, excluding households		
INCOME				
Net income from farming	176,063	11,266	- 663	10,312
Off-farm income	17,125	9,569	18,279	16,146
Total income from farm and off-farm sources	193,188	20,835	17,616	26,458
BALANCE SHEET				
Assets, Jan. 1	2,211,196	744,966	173,387	403,639
Debt, Jan. 1	468,741	118,134	24,040	66,967
Equity, Jan. 1	1,742,455	626,832	149,347	336,672
COSTS				
Parity ratio to cover all costs (1910 - 14 = 100)	54	77	132	72

[a]U.S. Department of Agriculture (1982a, pp. 74, 75). Cost data from Tweeten (1983a).

resorted to strategies of part-ownership (owning a home acreage and renting additional land), part-time farming, and, in some enterprises, vertical coordination. The last strategy features production contracts or ownership by a single firm of operations in more than one of the input-supply, farm-production, or marketing phases of the food industry.

Large farms account for half of all farm output and usually can compete effectively in world markets. Productivity has advanced to the point where adequately sized and managed farms produce and cover all resource costs at product prices averaging just over 50 percent of 1910-1914 parity prices (see Table 1). Such farms required approximately 75 percent of parity prices to cover all costs in 1970.

Owner-operators of well-managed commercial farms expand aggressively by buying land, especially when expected real farm prices are favorable. Profits from farm-commodity prices supported above costs on efficient farms will be bid into land values over time. This bidding process means that entrants not only will fail to realize income benefits of commodity programs holding prices above long-term competitive levels but will face the added entry barrier of inflated land prices.

The traditional family farm has survived, partly because it has perennially displayed a high level of operational management characterized by timely, efficient, and caring husbandry of crops and livestock. In the emerging environment of agriculture, sophisticated organizational management requiring specialized personnel and equipment is becoming important relative to operational management to deal with instability and cash-flow problems. Organizational management apparent in marketing, major asset purchases and sales, and financial strategies is a strength of large farms using computers and advanced information systems, and diversified into a portfolio of investments. High total costs of top-quality organizational management are kept low per unit by spreading them over a large output. In addition to these strategies associated with the structure of the farming industry, some farmers are utilizing risk-management strategies, such as crop and other insurance and forward pricing (contracting, hedging, etc.), along with computerized information retrieval, processing, and forecasting systems. Several of these systems are best suited for large farms.

Medium-size farms had considerable wealth in 1981, averaging more than one-half million dollars of net worth per farm excluding the operator's dwelling (Table 1). They have less off-farm income than small or large farms to buffer unstable income from farming.

Small farms, defined as those with sales under $40,000 per year, require high product prices to cover all costs, but fewer and fewer operators of small farms depend upon the farm for a livelihood (Table 1). Most part-time operators of small farms do not have low income. They use off-farm income to pay for and enjoy the farm way of life.

National agricultural policies that are developed for farms operated to derive a livelihood from production are not necessarily applicable to small farms. The level of farm prices is not of marked consequence for most families on small farms because income from farm

sources is only a small part of their total income. Many of these farmers benefit very little from commodity programs. A strong nonfarm economy is important to provide or maintain their nonfarm employment. For many families on small farms who are poor and aged or disabled, social welfare programs are more important than income from farming or commodity programs.

Net income loss from farming in 1981 averaged $663 on small farms ($40,000 and lower sales). These farms represented 72 percent of all farm units. Off-farm income averaged over $18,000 on these farms. Off-farm income was only slightly lower on large farms.

Because of substantial off-farm income (especially on small and large farms) and the efficiency of commercial farms, per-capita disposable personal income of the farm population in 1981 averaged 88 percent of that of the nonfarm population! This occurred despite the second lowest real income from farming since the depth of the Great Depression. With a similar parity ratio in the 1930s, farm income per capita averaged only about one-third of nonfarm income per capita.

In short, large farms cope with risk and cash-flow problems by utilizing opportunities for production and marketing efficiencies, for diversified sources of debt and equity-capital and income, and for avoiding life-cycle financing problems of the family farm. Small farms cope with these problems by off-farm earnings. Full-time, mid-size, family farms with sales of $40,000 to $200,000 per farm are most vulnerable. Commercial family farms, especially recent entrants or expanding farms, probably need most help from research, extension, and public policies to deal with risk and cash-flow problems in an unstable economic environment.

Policy Options

The Joint Economic Committee staff report raised a number of issues "presented more for the purpose of focusing needed debate than to suggest conclusions." The staff report did not examine policy options — a task perhaps beyond reasonable scope for the report. However, we are of the opinion that it is of vital importance to go beyond a statement of the economic environment for agriculture. The remainder of this report reexamines policy options, especially commodity programs, in light of emerging economic developments.

Policies Other Than Those for Commodities

Before we turn to commodity program alternatives, the critical importance of other policies to the economic health of agriculture must be recognized. Commodity programs may be only the most obvious, direct, and expensive public involvement in agriculture. With integration of agriculture into the national and world economies, nonagricultural policies frequently overshadow commodity programs in their impact upon agriculture.

Fiscal-Monetary Policy

U.S. agriculture cannot long remain economically strong without healthy national and even international economies. Fiscal and monetary policies lie at the heart of such economic health. In the words of the staff report, "Farmers can receive substantial net income benefits from stable and consistent monetary and fiscal policies. Lower interest and inflation rates, improved domestic real personal incomes, and a more realistic U.S. dollar value in foreign exchange are essential for agriculture's recovery." The decline in farm exports since 1982 relates significantly to domestic fiscal-monetary policy which further depressed international economies and raised the value of the dollar in foreign exchange.

Trade Policy

This nation has never had a coherent international trade policy but could benefit from one. Such a policy could have several dimensions.

First, it could make explicit the institutional roles of various federal Departments, including State, Defense, and Agriculture, as well as the Office of Management and Budget, in formulating trade policies relating to agricultural and food commodities. One option would be to establish a Department of Trade and Industry to integrate now fragmented components of the federal government relating to trade. A major function would be to give continuity and coherence to negotiations among nations to promote freer international trade.

Second, a trade policy could recognize that international agricultural trade is closely tied to monetary-fiscal policies of all trading nations. Economic recovery from recession and continued stable economic growth without inflation might be achieved best by joint monetary-fiscal efforts among trading nations. History

demonstrates that unilateral actions are swamped by international economic tides.

Third, a national trade policy could respect the integrity of farmers' efforts to compete in international markets. Federal decisions to impose export embargoes or in other ways interfere in international markets can have massive short- and long-term unfavorable economic impacts on farmers. The special burden that falls on farmers can be recognized and fair compensation made. One option is to specify by law that export embargoes on farm products be reserved for national emergency only.

Research, Extension, and Information Systems

Strong private and public programs of scientific research and extension are necessary to assure continued productivity gains and enhance the ability of our farmers to compete in world markets. As noted earlier, the greater price-elasticity of demand for farm output associated with the export of a substantial portion of U.S. farm production allows farmers to reap a larger share of the benefits from improved productivity.

The comprehensive information-identification and delivery systems required by modern agriculture will not be provided by the private sector alone. The public sector plays a key role in gathering, analyzing, and disseminating data — a role of particular benefit to family farms lacking access to costly commercial information sources.

Taxes and Credit

Tax and credit policies need not favor capital over labor, large industrial farms over family farms, or corporations over sole proprietorships.

Other Policies

Numerous other policies have significant impacts upon farmers, and these deserve consideration even though they are not treated in detail in this report. We mention, for example, legislation and regulations dealing with the environment, health, safety, and transportation. Ideally these matters should be resolved only after careful analysis, and with appropriate sharing of burdens between producers and consumers.

Where conservation of soil and water resources is concerned, the market alone will not suffice. Appropriate public policy is essential to assure a sustainable as well as productive agriculture. The institutional environment for allocating water resources becomes more critical as competition intensifies for available water supplies (Osborn et al., 1981).

Commodity Policy Alternatives

Each of the commodity policy alternatives and options examined in this section has advantages as well as disadvantages. No alternative or option is likely to elicit early approval simultaneously from farmers, taxpayers, and consumers. But the study of these strengths and weaknesses provides background for the public to make necessary hard choices and compromises in light of the emerging economic environment for agriculture.

This portion of the report is divided into the following main sections, in each of which are discussed the advantages and disadvantages of the alternative policy or policies in question.

A Supplemented Private Sector. A totally free market for agriculture seems out of the question. The section on a supplemented private sector examines stabilization of agriculture with minimal government involvement (no commodity programs), but with public measures to provide income insurance, to assist the private sector to hold commodity reserves, or to strengthen forward-pricing markets.

Direct Payments. In principle, direct payments without simultaneous production controls allow farmers to be price-competitive in foreign markets while cutting government administrative costs and providing income protection focused on family farmers.

Demand Expansion. In theory, sufficient expansion of demand could bring farmers a market orientation with adequate returns while removing the burden of administrative and other expenses of control.

Referendum-Quota Approach. If direct payments cost the government too much, if demand expansion is not feasible, and if unrestricted production gives economic outcomes unacceptable to farmers, then why not require all farmers to cut output to raise prices if some specified majority of the farmers votes to accept that option?

Dairy Policy. Other sections of this report emphasize broad policies applied across commodities, but the dairy industry provides unique economic problems and opportunities requiring special attention. Consequently, one section is devoted solely to policy alternatives for the dairy industry.

Modifications of Existing Programs. Farm policy has departed sharply from that previously followed, mostly

in times of crisis. Certainly many will not view current conditions as adequate reason to forsake the comfort of known and practiced remedies. Perhaps modification of current basic legislation to adjust price supports, place a maximum limit on commodity reserves, or reduce slippage in supply controls would provide an acceptable compromise.

Alternative Agriculture Options. This section reviews several of the socially oriented options that have been proposed as alternatives to the options discussed in the preceding sections. Discussed in this section are proposals to channel greater benefits to (and, hence, to encourage) smaller farms, beginning and distressed farms, farms adopting soil conservation practices, and farms using reduced amounts of off-farm production inputs.

A Supplemented Private Sector

The presumption for this section is that the nation would benefit as a whole by relying more upon markets to determine farm prices and incomes. Despite difficulties created by past programs (see the general introduction), there is reluctance to rely solely upon markets because of periodic instability in commodity prices and consequent periods of low incomes. A limited governmental role in price or income stabilization is an alternative.

The first option considered here is the general step of moving away from federal intervention in commodity markets that either raises or lowers commodity prices or farmers' incomes averaged over a period of years.

The specific options are alternative approaches to achieving the general goal of less government involvement in farm commodity markets. The first specific option is to supplement forward-pricing markets. The second specific option is to provide insurance, which farmers would buy and which would make them eligible for indemnity payments when receipts fall below an insured level. The third specific option is price stabilization through a buffer-stock program that returns all commodities taken off the market back to the market at a proximate later time, and so does not constitute a price-support program in a long-term context.

The General Alternative of Greater Reliance Upon Markets

This general policy approach assumes that governmental management has proved unsatisfactory and is probably unable to improve on the situation generated by unrestricted markets for agricultural commodities. It assumes that there is no chronic tendency toward overproduction or shortage in an unregulated market context. It assumes that in such an environment commercial farmers can be expected, over the long term, to earn returns to their labor, management, and investment comparable to returns earned in the nonfarm sector. It abandons the attempt to prop up inefficient producers, which past programs have proved unable to accomplish anyway. However, this alternative views short-term instability as partly a market failure; hence, some supplementation of markets by governmental action is necessary to deal with market fluctuations.

The wisdom of accepting the general approach involves the truth or falsity of the assumptions just listed. Against them it may be argued that there are inflexibilities in resource adjustment, a lack of free international markets due to policies of our competitors abroad, and imperfections in the markets to which farmers sell and from which they buy that constitute market failures which should be remedied by governmental action. Commodity programs as traditionally established, however, are poor remedies for these imperfections, and our historical experience with legislation of agricultural prices has been disheartening.

The transition to minimum government support would not be easy in a time of excess capacity and stocks. Hence, a transition program to reduce stocks might be retained. Direct payments might be scaled down at a specified rate to phase out completely after, say, five years.

Advantages of the general alternative of greater reliance upon markets include the following:

- Long-run prices different from unregulated commodity-market-clearing prices result in surpluses or shortages, either of which is socially costly.
- Even well-intentioned efforts to correct real inadequacies of markets tend to run afoul of a political environment dominated by narrow-interest-group politics.
- Historical experience with price-support policies is chastening in that low-income and inefficient farmers have not been saved, nor have bankruptcies been prevented. Benefits have been capitalized into land values.
- The federal budget would be reduced by nonintervention, freeing scarce federal funds for other purposes, reducing taxes or reducing deficits.
- With less intervention, U.S. commercial farmers would be in a better position to produce efficiently for the international market, increasing the productivity and competitiveness of U.S. agriculture and the nation as a whole.

Disadvantages of the general alternative of greater reliance upon markets include the following:

- Unregulated markets may give rise to a series of years of short supplies and high food prices or excessive supplies and low farm income which only reserves held as diverted acres can adequately dampen.

- Our government intervenes to generate inflation, recession, and export embargoes; therefore, it needs to intervene with farm-commodity price supports to alleviate the consequences.
- There is no free market internationally because of other countries' policies; therefore, our government must intervene in self-defense.
- Competition is imperfect in domestic markets because of middlemen's market power; therefore, government should intervene.
- Current programs are a response to democratic political forces that should be respected.
- Numbers of large and small part-time farms might grow while numbers of mid-size farms might decline more rapidly than under current programs.

Specific Alternatives to Bring Greater Reliance Upon Markets

Option 1. Farmers traditionally have combined the role of production and risk-taking, so that their personal income is a return to their labor, management, and risk. The most unstable portion of their personal income is the return to risk, which is often negative. Production and risk roles can be separated, however, with the risk shifted to professional speculators and insurance agencies. On the whole, those who assume risk require compensation. Thus farmers' personal income would be somewhat lower but more stable over a period of years with risk shifted to others.

Futures markets are currently available to hedge price risk. Some shortcomings of the futures markets are: (1) comparatively few farmers use them, (2) contracts are available only one year into the future and, hence, cannot hedge risks arising from a farm economic slump exceeding that duration, and (3) the speculator side of the market may be too thin to avoid substantial price discounting (low forward prices), especially for more distant contracts, if a large portion of farm output were hedged.

One alternative would be for the government to prespecify a price band in the futures market for commodities, intervening to maintain prices within that corridor and, hence, serving as a speculator of last resort. Commodity stocks and direct payments are two tools that could be used in this effort. Futures contracts would be made available for markets more than one year ahead, perhaps up to three years. An extensive educational program would be mounted to inform producers in the use of futures markets and perhaps assist them directly until they become familiar with procedures.

A supplemental approach is the development and perhaps subsidization of *put* options for the main agricultural commodities.[4] By buying both crop insurance and put options (or selling futures contracts), a producer could essentially insure against either low yield or low prices. The cost to the producer would depend upon the level of coverage desired.

In the supplemented futures market approach described in the first option, the government would deepen the futures market by establishing and sustaining a price corridor for contracts. The advantages of this first option include the following:

- Farmers would have more freedom in allocating their resources to do what many do best — produce — with less price risk and without supply control.
- The approach would entail less government cost for administration, supply control, and direct payments than do existing programs.
- Aggregate farming resources could be allocated more efficiently with somewhat predictable forward prices.

The disadvantages of the supplemented futures market option include the following:

- Few farmers now use futures markets, and perhaps not many could be induced to do so even with favorable education and economic incentives.
- Operators of large farms now make most use of futures markets, and this condition could persist.
- Government interference in futures markets would be resisted by private speculators and others.
- Government action to hold prices in a corridor could entail high costs and mismanagement.
- Futures prices less than the cost of production would bring strong political pressures for intervention to restore traditional commodity programs.
- Futures prices outside the price band might sometimes be warranted by unforeseen economic events, such as a world food crisis, but markets would be constrained from responding with needed price changes and incentives.

Option 2. The central thrust of pre-New Deal programs under the Federal Farm Board was commodity market stabilization through governmental purchases when prices were low for resale during periods of stronger markets. This basic idea has been continued,

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[4] A producer would purchase an option to sell a commodity at a specified price. If market prices exceed the specified price, the option is not exercised. Markets do not now exist for such put options and would need to be authorized. One advantage over hedging in the futures market is that put options do not require margin calls. The put option provides security against an unexpected price decline. But unlike the hedge, which insures against either a price gain or loss, the put option allows the farmer to reap the benefit of a price increase. Extensive use of either put options or hedging would lead to higher discounting of future prices due to a relatively thin market supply of speculators.

with refinements, through the "Ever-Normal Granary" to the "Farmer-Owned Reserve" and finally to recently discussed international buffer-stock approaches. Past attempts at such stabilization tended to develop into more or less permanent price-support programs, with consequent buildup of unmanageable surpluses. These in turn have led to production controls, restraints on international trade, and subsidized sales of stocks.

Consequently, there has been experimentation with programs to support farm income during low-price periods without direct intervention in commodity markets. These programs, such as the current system of deficiency payments, have provided cash payments to farmers. These payments have tended to encourage overproduction and have been judged as unsatisfactory by many farmers and taxpayers. Proposals have been made to move away from these payments while still providing some insurance against low farm incomes (see, for example, Swerling, 1961; Schuh, 1981). A study of farm income insurance as a possible substitute for commodity programs, mandated by the Agriculture and Food Act of 1981, has just been completed by the Farm Income Protection Insurance Task Force (1983) under the chairmanship of James E. Bostic, Jr.

Stabilization of income could be accomplished without direct effects on market prices. The mechanism would be a program making direct payments to producers when their incomes are low. The most straightforward scheme of this type is income insurance. Insurance of gross farm income appears to be more feasible than insurance of net income. An insurance policy on gross receipts would pay an indemnity when a producer's revenue falls below, say, 80 percent of a five-year average of market prices times the producer's normal output. This insurance could be sold by the federal government or by private insurance companies.

A related option is to increase substantially the role of the Farmers Home Administration (or a new federal lending agency) with substantial federal backing. Loans would be made available to farmers when the farming economy is distressed, with repayment of principal and interest deferred until economic recovery of the farming industry.

Under the second option, farm income stabilization, the government or subsidized private firms would provide insurance by payments to producers when farm income falls below a protected level. Advantages of this option include the following:

- The market may allocate resources efficiently over the long term, but this alternative would alleviate the unacceptable short-term instability.
- Because premiums would be charged for the insurance, induced output effects or unwarranted redistribution to wealthy farmers could be minimized.
- Resources would be allocated more efficiently if farmers' risks were reduced.
- Producers would be able to choose the degree of income protection most suitable to their individual situations and their willingness to pay. They would do so without giving up their freedom to act as they choose in the market place and without the governmental costs and potential resource misallocation generated by government price supports and supply control.
- Political pressures for inefficient forms of intervention would be defused by this program.

Disadvantages of the farm-income-stabilization option include the following:

- The insurance probably would not be purchased by producers unless the premiums were heavily subsidized.
- If farmers wanted income insurance enough to pay for it, the market would already be providing it. Crop yield insurance and price hedging in the futures market are strategies now available but not used by most farmers.
- Income insurance is not actuarially or managerially feasible in the near term, and may never be. A series of years of low income would deplete fund reserves.
- The program could be abused by farmers who fail to make wise production and marketing decisions. This "moral hazard" could lead to high insurance premiums and payments, inequitable treatment among participants, and low participation. In time, however, such problems could be reduced by adjusting the premiums of individual producers according to the individuals' historic record of claims.
- If any subsidy were placed upon the premiums, the program would encourage undue risk-taking, resource misallocation, and excessive output.
- If the program did not contain subsidies, it would have no chance politically.

Option 3. Stabilization of market prices is an independent matter. An income-stabilization measure for farmers would do little, if anything, to stabilize food supplies and market prices. If serious market failure is apparent in price and food-supply instability in unregulated markets, additional supplementation of private-sector activity would be necessary. To avoid the pitfalls of current commodity programs, subsidies to production or controls on output could not be a part of this governmental intervention. The main policy tool for accomplishing the desired stabilization of market prices would be governmental management of commodity buffer stocks. Appropriate acquisition and release of stocks would produce little long-term distortion of commodity markets because sooner or later these stocks would have to be sold anyway. Because acquisitions would equal releases over time, the effect on long-term average prices would be small. Although buffer stock

stabilization schemes have been used historically, they went beyond stabilization objectives and evolved into long-term price-support policies.

An alternative mechanism to public management of stocks would be to have the government simply pay storage subsidies to private firms and individuals, essentially a farmer-owned-reserve program without acquisition or trigger prices. Such a policy would decrease the tendency to depart from stabilization objectives but would raise concerns that firms and individuals would not acquire and release stocks at the proper times. Although the concern may be valid, government guidelines often have served no better than private decisions in the past (Gardner, 1981).

According to the price-stabilization concept in this option, the government would acquire stocks when commodities are cheap and would sell when commodities are expensive, hence stabilizing markets. The advantages of this option include the following:

- Without intervention, price fluctuations cause excessive disruption in national and international markets.
- The private sector alone would not accumulate stocks to cope with infrequent but major catastrophies that would generate prices so high that political pressures would not permit "speculators" to receive them as compensation for risks.
- Stabilization could increase the joint welfare of consumers and producers and thus would be a good social investment.
- Livestock producers could plan more efficient production patterns over time if commodity prices were more stable.
- Political pressures from consumer groups for embargoes and price ceilings would be reduced.

The disadvantages of the price-stabilization option include the following:

- The government's stock policy might not be conducted any better than speculative storage by private interests.
- Government storage would crowd out private storage.
- The United States would end up with most of the world's grain stocks and thus would tend to carry the world's burden of price stabilization at U.S. taxpayers' expense.
- Government stocks would tend to overhang the market, and, as a result, producers would be better off over the long term if stocks were lower and prices were free to vary.
- Political pressures would be strong to convert any stabilization scheme into a price-support program.

Direct or Compensatory Payments

Government commodity programs featuring direct or compensatory payments would seek to support or stabilize incomes of agricultural producers while letting market prices and production adjust to economic conditions. Cash payments could be made to producers on the shortfall of market prices below some guaranteed minimum price or on the shortfall of income below some minimum income specified in advance. Limits on payments per recipient could be established. In principle, a direct-payment program would allow market forces the freedom to establish market-clearing prices without supply control. Unsupported commodity market prices would benefit consumers and would keep exports competitive in world markets. Government ownership of stocks would be avoided, along with handling costs and disposal problems for surplus commodities. Payments potentially could be targeted to special groups, such as low-income farmers or operators of small farms. Government costs of these programs could be monitored readily. Costs would be allocated to taxpayers on the basis of their tax contributions.

Experience

A brief review of American experience reveals some of the principal forms of direct payments to farmers since they were initiated in the 1930s. Direct payments have not operated in a pure form for major farm commodities but in conjunction with acreage diversion and market-price support programs.

"Parity" payments introduced in the 1930s added as much as one-fifth to the cash incomes of cotton and wheat farmers in 1939. The Brannan Plan was proposed after World War II to extend direct payments to producers, including those of livestock and perishable commodities, but it mustered little interest in comparison with existing price-support programs for storables. Direct payments for wool, nevertheless, were introduced in the 1950s. U.S. sugar cane and sugar beet producers also have received direct payments. Funding for wool and sugar programs comes from import duties imposed upon these commodities and, hence, draws little public attention.

Large-scale payments were made to wheat, cotton, and feed-grain producers in the 1960s. Because most of the feed-grain payments were amounts necessary only for farmers to idle cropland, they were mostly acreage-diversion payments rather than true direct payments. In contrast, about half of the payments for wheat and two-thirds of those for cotton were direct income supplements in excess of inducements required by farmers to divert land from production.

Direct or compensatory payments were part of the

Agriculture and Consumer Protection Act of 1973. Current legislation, the Agriculture and Food Act of 1981, provides for deficiency payments when market prices fall below target prices for wheat, feed grains, rice, and cotton. Legislation from time to time has authorized payments to compensate farmers for crop losses resulting from adverse weather in locations where "disasters" were declared. Disaster payments now are limited to situations in which producers do not have access to federal crop insurance.

In theory a direct-payments program could be operated without supply-control measures, but in practice eligibility to receive payments usually has been tied to participation in programs designed to reduce output. Success has not been apparent in designing direct-payment programs which do not create incentives to increase production. Federal outlays go further to raise farm incomes when used to reduce farm output and, hence, raise prices.[5] Although commodities differ, depending upon their specific demand and supply elasticities, it is difficult to keep target prices low enough to avoid large public costs in a direct-payments program. The wider the gap between target and market prices, the greater is the budget pressure. To be manageable over time, a direct-payments program for agriculture might need to include some combination of modest target prices, payment limitations to individuals, and the option to impose supply control when necessary.

Incidence of Benefits and Costs

Direct payments require by definition that the nonfarm public pay most of the costs through contributions to the U.S. Treasury.[6] The distribution of costs and benefits is likely to differ substantially, depending upon the specifics of the program in force. Key issues include limits on payments to farmers, the gap allowed between target and market prices, and the method of collecting revenue for the program from taxpayers or consumers.

Payment limitations. Farmers with historically large acreages of crops or large production bases receive more dollars from a direct-payments program than do those with small acreages or production bases. In the 1960s, public concern mounted over individual farmers or corporations who received $100,000 or more annually in direct payments. One senator from Delaware regularly read into the Congressional Record the names of the 10 farmers or corporations receiving the largest payments, some receiving more than $1 million in a single year.

Payment limitations were imposed by Congress in 1970. Upper limits of first $55,000, then $20,000, and more recently $50,000 per farm for deficiency payments were enacted before introduction in 1983 of the payment-in-kind program which entailed no limits on in-kind payments.

The argument for payment limitations revolves around equity. Congress and the public probably desire to assist small and medium-size family farms in times of adversity and do not want direct payments to encourage the concentration of farming into larger and larger businesses. Direct-payment programs benefit some types of farms and regions much more than others. In 1970, for example, direct payments added 15 percent to gross farm income in Mississippi and North Dakota but less than 2 percent to gross income in the 12 northeastern states. Fruit, vegetable, and livestock farms have not shared in these programs; field-crop producers have been the chief beneficiaries.

With a given federal outlay, paying farmers to reduce output is more cost-effective than direct payment to raise farm income. To be effective, diversion programs must include large farms and not simply concentrate output reductions on small and medium-sized farms. Thus it is more feasible to focus compensatory payments than acreage diversion payments on smaller farms. A principal argument against payment limitations is administrative problems. It is difficult to establish a system of payment limitations which cannot be circumvented by division of land ownership, reallocation of management responsibilities, and other mechanisms. Another drawback is that the high visibility of direct payments creates uncertainty among recipients. They fear that payments will be reduced in times of federal budget stringency.

The gap between target and market prices. Budget costs and the resulting benefits to farmers through a conventional direct-payments program are tied to the difference between target prices as announced and unknown market prices in the future. Reliance upon direct deficiency payments alone in the absence of supply control and price-support loans could result in large and unstable costs. The more price inelastic is the demand for a crop, the more dramatic will be the effect of greater supplies on price. An obvious concern of both the executive and legislative branches is the potential cost if target prices are tied to some calculated cost of production, particularly if effective world demand shrinks for a crop like wheat. Political reality may require that a large gap between target and domestic market prices be reduced, either by lowering target

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[5] As discussed earlier in this report, demand has become less price-inelastic. However, short-run demand remains sufficiently inelastic for major crops so that acreage-diversion payments go further than direct payments to raise farm income for periods of at least one or two years. In the long run, direct payments add about as much to farm income as acreage-diversion payments.

[6] If farmers pay a substantial part of the costs for the program, it becomes a form of the subsidized insurance scheme discussed earlier.

prices or by placing a floor under market prices. This issue is discussed in a later section on modification of existing programs.

Financing direct payments. The public acceptability of a direct-payments program would depend partly upon how the funds were obtained. Wool and sugar programs have escaped intense scrutiny, partly because they are financed by import duties rather than directly from tax funds. The small number of farmers involved also may contribute to the low profile of the program. Consumers pay the costs in the form of higher prices.

Financing a widely based, direct-payments program from federal tax revenues would have both advantages and disadvantages. Program costs would be in the public eye and, hence, would be accountable as part of the budget process. Even if the program were financed by progressive income taxes, some transfers would be from lower-income taxpayers to higher-income (and wealthy) farmers. Effective payment limitations or payments based upon low net income rather than high production could conceivably ensure that transfers were from higher-income taxpayers to lower-income producers. Low-income consumers with modest tax liabilities would benefit because of lower food costs compared with what they would pay if supply controls were imposed. Public knowledge and legislative oversight of the program would be enhanced. By the same token, too much budget exposure might threaten the survival of the program, whatever the true balance of social costs and benefits.

Other Modifications of Payment Programs

Shortcomings of commodity programs, such as capitalization of benefits into production bases, encouragement of overproduction, and benefits tied to cropland rather than people, are not unique to direct payments. But the flexibility of payments offers some unique remedies, only some of which may offer promise.

Benefits of direct payments tied to a production base are capitalized into the base; hence, benefits are lost to the new owner when the base is sold. As a remedy, some have proposed that payments be tied to the producer rather than the production base. Implementation of this proposal would enhance human resource mobility but would raise claims of unfairness if payments were to continue to those who leave farming. Other nonfarmers, of course, would receive no payment.

Payments adjusted to changing yields and cropland acreage become a "supply price" and encourage overproduction. A remedy would be to set payments based on past production and not change them. A problem with this remedy would be that payments could continue for apparently unjustifiable reasons when the base was shifted to urban development, forest, or other uses unrelated to the original intent of the payments.

Direct payments in the form of a negative income tax or related personal-income-tested program are difficult to administer and raise issues of equity between sectors if only agriculture is included. Also income-tested programs may not serve social objectives, such as maintaining the family farm or stabilizing food and fiber prices and quantities in a national food policy.

Summary of Advantages and Disadvantages

Any effort to consider alternative programs to reduce instability in a market-oriented agricultural economy must recognize trade-offs. Some will gain while others lose. No program ensures that all will be better off.

The potential advantages associated with a direct-payments program include the following:

- Lower market prices for farm commodities would increase the competitive position of U.S. farm products in international trade.
- Price-depressing stocks of commodities and associated storage costs would be reduced.
- Unit production costs would be reduced because cropland would not be diverted but could be combined with other production resources in the least-cost combination to produce output.
- Consumer prices for food would be reduced relative to alternative programs designed to restrict production and raise commodity prices.
- Costs of the program would be allocated to U.S. citizens on the basis of progressive income taxes rather than "regressive" food costs. (Because low-income consumers pay a higher proportion of their income for food than do other consumers, the relative burden of higher food costs from supply control would fall disproportionately on those with low income.)
- The program could be adapted to fruits, vegetables, and livestock products as well as storable commodities if necessary or appropriate.
- Direct payments could be targeted more effectively than supply-control programs to serve farm-structure objectives such as preserving small and medium-size family farms. Upper limits on payments to individual businesses could be established.
- Direct payments without production controls would give farmers more freedom to make production and marketing decisions while eliminating government administrative costs of supply control.
- Direct public costs of the program would be readily apparent to the public. Effective monitoring of expenditures thus would be encouraged.
- Much of the county, state, and federal structure, as well as the data base, necessary to carry out such a program is already in place or could be adapted readily.

The disadvantages of a direct-payments program include the following:

- Payments to farmers would be highly visible in terms of costs, while consumer benefits could not easily be documented or identified. (Social costs to consumers of tight production controls might be much greater than under direct payments, but costs would be less visible.)
- Continuity of direct payments might be threatened in times of budget stringency.
- The market-clearing mechanism, so crucial to making a direct-payments program successful, might not be fully effective in stabilizing or moving supplies in the short run. Thus, direct payments, compared with existing programs, might add to consumers' price instability while buffering farm income.
- The political acceptability of a direct-payments program to farmers would be uncertain. Other things equal, farmers prefer income from the market to income from the government.
- Payment limitations, an attractive feature of direct payments, would be difficult to administer. Limits for each commodity would allow large total payments for a diversified producer. A limit per recipient farmer would require aggregating commodities for the business as a whole. Operators could be expected to divide their businesses "on paper" to avoid limitations.
- International market repercussions, particularly with competitors, would be likely if our farm export prices were to become more unstable and were viewed as subsidized by payments in the absence of production controls.
- Budgeting the costs of compensatory payments would be difficult because the difference between an established target price and the future market-clearing price would be unknown. Potential government costs would be high.
- Establishing "equitable" target prices for commodities or products would be difficult if the aim were to provide a measure of income insurance in times of surplus but not to provide incentives for production beyond expected effective demand.
- Payments would be difficult to divorce from production incentives. Some kind of production controls might be necessary if operation of the program provided continuing incentives to produce for demand-inelastic markets.
- Direct payments might delay resource adjustment out of commercial agriculture in areas or situations where continued production would be uneconomic without subsidies.
- A negative income tax or related income-maintenance program not tied to production might be a more cost-effective method to target income protection to the needy.

Demand and Revenue Expansion

Demand- and revenue-expansion programs are popular among agricultural producer groups in the United States because such programs promise to increase commodity receipts and solve farm problems without use of government payments or supply control. In this section, alternatives are separated into general categories: (1) options that increase demand and (2) options such as two-price plans to obtain more revenue from a given demand without supply control.

Efforts to Increase Demand

Demand expansion results in higher prices. Options to increase the demand for food and fiber must take into consideration the factors that cause the demand to increase: (1) tastes and preferences of consumers, (2) disposable income per capita, (3) population size, and (4) price and availability of substitutes.

Little can be done by producer groups to enhance demand by increasing disposable income and population or by influencing prices and quantities of substitutes. Options do exist, however, for changing the tastes and preferences of consumers.

Advertising and promotion campaigns may increase demand for particular food items by changing consumers' tastes and preferences. U.S. agricultural producers have used checkoff programs to fund product-promotion campaigns domestically over the past 30 years. These promotion campaigns emphasize generic advertising for a particular type of food or fiber such as pork, milk, oranges, beef, or cotton (Ward, 1976; Thompson and Eiler, 1975; Cropp and Cook, 1976). A commodity group organized and funded by producers sometimes cooperates with the government to increase demand through advertising.

More domestic demand for a particular food group, say, beef, usually results in less demand for other food groups due to substitution by consumers. Advertising and other promotion, however, can raise total receipts for agriculture when consumers substitute higher-priced food items for lower-priced items or where a new use of a product does not interfere with other uses.

Development of alternative uses for a raw product can increase the demand for some agricultural commodities. The use of corn to produce fructose is an example of demand expansion through alternative uses for the crop. Alternative uses for a commodity, however numerous, are of little benefit to producers if uneconomic at typical price relationships. For example, production of ethanol from grains for motor fuel is now economically feasible only with substantial subsidies (Avant et al., 1981).

Foreign market development efforts of various groups, including the Foreign Agricultural Service (FAS) of the U.S. Department of Agriculture, have increased export demand for U.S. agricultural commodities. FAS manages market-development activities that are planned, implemented, evaluated, and financed jointly by FAS and a cooperating producer organization. Activities of FAS emphasize market information, technical assistance to importers, buyer awareness, and consumer education. The producers' share of the costs generally is financed by a checkoff program made feasible by enabling legislation.

Well-financed market-development programs to increase export demand work best if the U.S. commodity is available for export at competitive prices. In comparison with commodity programs, the cost to the government and producer groups is small for demand expansion. Other FAS activities to influence demand for exports include reduction of trade barriers and an export-incentive program. The latter program seeks to promote branded items produced in the United States.

P.L. 480 (Food for Peace) exports tend to increase demand through their market-development actions. The program may have been designed originally for humanitarian and supply-disposal purposes, but it helped build commercial markets in Japan, South Korea, Taiwan, Brazil, Spain, and elsewhere. In some instances, the demand-increasing and market-creating role of P.L. 480 shipments is secondary to diplomatic considerations.

Government food programs to expand domestic food demand have included commodity donation, food stamps, the Women-Infant-Children Supplemental Food Program, and the school-lunch program. Some surplus foodstuffs acquired by the Commodity Credit Corporation in its price-support activities have been given to institutions and needy families under the commodity-donation program.

Under the school-lunch program, USDA donates food plus a small cash subsidy per lunch to reduce the cost of school lunches and increase the nutritional intake of school children. Food stamps provide a subsidy for low-income families to purchase food for an adequate diet. These government programs increase the domestic demand for food items with high income elasticities while decreasing the demand for food items with low income elasticities (Lane, 1978). Additional federal spending for food programs tends to displace commercial sales.

Wetmore et al. estimated in 1959 that food programs could feasibly expand domestic demand up to 4 percent. The percentage is probably less today.

The advantages of demand-expansion programs may be summarized as follows:

- Demand expansion by advertising and promotion and by domestic and export subsidies is a cost-effective means of increasing the demand for some food items, especially for those with high price and income elasticities.
- Demand expansion does not interfere with individual producers' production and marketing decisions.
- Advertising funded by a producer checkoff increases demand without large government costs.
- Developing alternative uses for farm commodities makes the total demand more elastic and thus less price-sensitive to random changes in supply.
- Government food programs not only enhance farm income but also are a basic income supplement to low-income consumers, improving their nutritional intake.

The disadvantages and limitations of expansion programs include the following:

- Demand-expansion efforts cannot easily be turned on and off to cope with economic problems of instability, cash-flow, and commodity surpluses in agriculture.
- Demand expansion by advertising and promotion, by finding new uses for outputs, and by domestic and export subsidies may be worth pursuing where benefits exceed costs, but the payoff is primarily of longer-term benefit to producers.
- Many alternative uses of major farm commodities are not economical without subsidies.
- Advertising that increases the demand for one food item reduces the demand for substitute food items. Promotion may expand the demand for food processing more than for raw food ingredients.
- Foreign-market-development activities are unproductive if the commodity for which demand is created cannot be provided by U.S. farmers at competitive prices.
- P.L. 480 exports often replace commercial exports, discourage agricultural development in recipient countries, and may be controlled for diplomatic purposes.
- Supply responses to higher prices reduce some of the long-run benefits from demand expansion.
- Once initiated, advertising campaigns must be continued to maintain demand. Increases in demand are not necessarily permanent.
- Attempts to increase domestic food programs substantially would result in wasted food in school-lunch programs, food stamps spent for nonfood items, and transfers of government funds to those who can afford to pay.
- Political pressures may cause excessive public effort to expand food demand. Costs may exceed benefits because benefits of advertising and promotion cannot be monitored easily and tend to be overstated. Incidence of excessive calorie intake is more widespread

than incidence of too few calories in U.S. diets.

Efforts to Increase Revenue with a Given Demand

Revenue-enhancing approaches discussed here are of two general types: (1) obtaining greater access to markets by reducing trade barriers, by trade agreements, and by other means, and (2) price discrimination by export subsidies or administered lower prices in export markets than in domestic markets. The distinction between demand enhancement discussed in the preceding section and revenue enhancement discussed here is often blurred, however.

Even without supply control or direct payments, industry revenue potentially can be increased by shifting sales among markets of different elasticities. For this approach to work, markets for a commodity must be separable and must have different price elasticities. Administrative procedures must be suitable to allocate quantities and charge different prices in each market.

Revenue can be expanded by charging a higher price in inelastic domestic markets and a lower price in elastic export markets (for elasticity estimates see Johnson, 1977; Tweeten, 1967; Bredahl, Meyers, and Collins, 1979; and Ray and Richardson, 1978, pp. 79-85). Export demands faced by U.S. producers for grains and for cotton are considered to be relatively elastic in the long run. The peanut program, although discussed in the section on the referendum-quota (mandatory control) approach, is one example of division of markets and prices to increase revenue.

Various options, some actually used and others merely proposed, for increasing revenue are discussed in this section. Two-price and other means to raise revenue from a given demand without supply control are discussed in other sections, including the section on dairy policy.

Reduction of trade barriers through international trade negotiations has increased the exports of U.S. grains and fiber. Reduction of tariffs on U.S. agricultural exports reduces effective prices of our products to importers without reducing prices to American producers. Financial outlays associated with reduction in trade barriers are small.

Long-term bilateral trade agreements can also be used to increase quantities exported. Long-term bilateral trade agreements specify annual minimum and maximum quantities of agricultural commodities that will be traded between two countries over a given time period. Prices for these exports are not negotiated, but depend upon prevailing market conditions. The long-term grain agreements between the United States and the Soviet Union negotiated in 1975 and again in 1983 are well-known examples of bilateral trade agreements. Such agreements offer a way to expand existing markets in foreign countries at low cost. A disadvantage to U.S. agricultural producers and world markets is that bilateral trade agreements tend to increase price instability (Webb and Winston, 1981). Such agreements tend to impede trade among countries not included in the agreements.

Export subsidies also have been used to increase quantities exported by effectively reducing the import price of U.S. commodities. The most notable export subsidies are: direct dollar subsidies, blended credit, P.L. 480, and export payment-in-kind (PIK).

Direct dollar-subsidies are direct payments to importers for each unit of commodity purchased. Direct export-subsidies are one way to offset the export-dampening effect of U.S. price supports set above competitive levels. Such subsidies can be relatively cost-effective in raising export receipts with Treasury outlays in elastic markets of less-developed countries. A direct dollar-subsidy for farm products has been recommended by some farmer groups to overcome the effects of the strong dollar. Export subsidies are used also to offset export subsidies of competing exporters. In addition to being an expense to the U.S. Treasury, direct dollar-subsidies are a violation of the General Agreement on Tariffs and Trade if they result in an increased market share.

Export payment-in-kind (PIK) was used in 1983 to increase the quantity of U.S. flour shipped to Egypt. With export PIK, the U.S. government provided a bonus of wheat to millers filling the Egyptian order. The bonus wheat made the price of U.S. commodities more competitive in the world market without a direct dollar export subsidy. This option for increasing sales is most feasible when the government owns surplus stocks.

Blended credit is an export subsidy reducing the effective cost of our exports. Blended credit combines low-interest government export credit and federal credit guarantees with commercial credit in a single package to reduce interest costs for importing countries. Consequently, the effective net price of U.S. commodities is made more competitive, and exports are expanded. Funds for blended credit are provided by Congress to develop markets in countries which otherwise would not import U.S. commodities. A potential problem with using credit or other subsidies to expand exports is that other exporting countries increase their export subsidies. Such action can start a trade war in which importers gain at the expense of exporters.

P.L. 480 (Food for Peace) was used for up to one-third of U.S. export sales during the 1950s and 1960s when loan rates for grains and cotton were generally maintained at or above world prices. P.L. 480 sales may conflict with commercial sales, may be unduly influenced by diplomatic considerations, may elicit charges of dumping, may interfere with production in food-short countries, and may entail large dollar out-

lays if used for an extended time period.

Marketing boards have been proposed by some producer groups interested in increasing export prices. A central government authority or marketing board (similar to Canada's Wheat Marketing Board) would direct foreign grain and fiber sales to secure higher prices for exports. Price enhancement rather than increased exports would be the primary goal of the board. At the extreme, a central marketing board could make major production and marketing decisions for producers to stabilize domestic prices and control output. If the marketing board reduced marketing to obtain a higher price, production would have to be restrained.

Another approach patterned after the McNary-Haugen proposals of the 1920s would be for a government corporation to accept any commodities that would not sell in domestic markets at say 75 percent of parity.[7] The corporation would sell the "surplus" in export markets for the world price and return the proceeds to producers. Marginal output would receive the world price, discouraging overproduction. This approach would be very difficult to administer, would raise domestic food prices, and could bring charges by competitors that we are dumping surpluses in international markets.

Multinational cartels for food and fiber producers have also been proposed as a means of increasing prices. Demand-quantity expansion in foreign markets is a secondary objective for export cartels. The main objectives are supply control, price enhancement, and price stability on an international scale. To be effective, cartels require member discipline, close coordination of domestic farm programs, and provision for allocating market shares to participants. Because demand is more inelastic for several countries than for one country, joint action by several countries in a cartel is more successful than action by one country to raise revenue by withholding exports.

A cartel for agricultural exports could increase and stabilize domestic prices in the short run. However, there would be considerable pressure to undercut the cartel's established export price. Grains and fiber can be produced in a large number of countries. A cartel's efforts to raise the world price might encourage sufficient production in other countries to erode the cartel's export market and reduce receipts below unrestricted market levels in the long run (Hillman, Peck, and Schmitz, 1978, pp. 69-70). Other disadvantages of a cartel are apparent in the section on the market referendum-quota (mandatory controls) approach.

Full-cost-of-production pricing for exports has been proposed for grains and fibers. Such a policy would require setting minimum export prices for grains and fibers equal to their full cost of production, while letting domestic prices be set by the "free" trade forces of demand and supply. Such action would be the opposite of the traditional price-discrimination solution for maximizing revenues when faced with two markets. Charging the higher price in the elastic export market and the lower price in the inelastic domestic market would reduce total revenue. This option would make U.S. agricultural commodities less competitive, reducing quantity more than increasing price in the long run. Full-cost-of-production for exports would likely reduce domestic prices of affected food and fiber in the shot run due to the price-depressing effect of reduced export quantities shifted to domestic markets. Our producers rather than the foreign buyer would bear the burden of full-cost export pricing.

The advantages of revenue-enhancing proposals include the following:

- Trade barrier reductions make U.S. exports more competitive and cost U.S. taxpayers very little.
- Bilateral trade agreements can be effective tools for opening and expanding markets for U.S. exports. Such agreements can increase or assure market shares at little or no cost to U.S. taxpayers.
- Export subsidies make U.S. exports competitive when domestic loan rates establish a price floor above the world price or when competing suppliers subsidize their exports.
- P.L. 480 exports reduce surpluses of food and fiber and generate new markets in developing countries.
- An export cartel would reduce price instability and increase prices received by farmers and perhaps revenues in the short run with little or no cost to U.S. taxpayers.

The disadvantages and limitations of revenue-enhancing proposals include the following:

- Generating revenues by utilizing demand more fully is a long-term remedy which does not deal with farm-price instability and cash-flow problems.
- Gains to our producers from more open access to foreign markets are partly offset by losses from more open access by foreign competitors to our markets through reciprocal agreements.
- Bilateral trade agreements increase price instability, impede trade, and may interrupt supplies for countries excluded from the agreement, many of which are developing nations.

[7]One method to operate such a program would be to issue certificates to producers. The certificates would be required to attend sales of the commodity for domestic use at a specified price which would be above the world price level. Tariffs would be required to protect the domestic market from imports at lower prices.

- Export subsidies not only burden U.S. taxpayers but also discourage agricultural progress in developing countries by providing food imports at "unfair" subsidized prices.
- Direct dollar export subsidies are prohibited under the General Agreement on Tariffs and Trade if they increase market share. Export subsidies raise claims abroad that the United States is "dumping"; this weakens our moral bargaining position to stop dumping by foreign countries in the U.S. market.
- Export subsidies run the risk of setting off a "price war" in which exporters lose and importers gain.
- A marketing board, an export cartel, or administered full-cost export pricing could make U.S. exports less competitive, perhaps increase costs for supply control or carrying surpluses, increase domestic food prices, and reduce total commodity revenues in the long run.

Referendum-Quota Approach

The referendum-quota approach, here called mandatory controls, refers to programs requiring producers to reduce output or marketings without diversion payment. The lower quantity raises commodity price and, if demand is inelastic, receipts. This option contrasts with direct payments in that higher farm income comes from consumers in the marketplace rather than from federal taxes. Such programs can be directed by organized farmers or by government. The latter is emphasized here, but the principles would remain the same for whomever administers the program.

Marketing quotas and acreage allotments are the major instruments of control. A marketing quota limits the quantity of a specific commodity that each farmer is allowed to place on the market; an acreage allotment limits the number of acres that each farmer can plant or harvest. Once the program has been authorized by Congress, it can be implemented only after being submitted in a referendum to producers of the crop. If a specified proportion (usually two-thirds) of these producers votes in favor of the program, the provisions become binding for all producers.

Marketing quotas and/or acreage allotments have been used at various times over the past 40 years for several commodities, including cotton, wheat, peanuts, tobacco, and milk. Marketing quotas are still in operation for tobacco, peanuts, and hops. Marketing orders are used to control the marketing of some fruits and vegetables.

The overall purpose of this section is to analyze the feasibility of extending mandatory controls to a broad range of crops. After examining current mandatory-control programs for peanuts and tobacco, the discussion focuses on acceptance by farmers and on the economic impact of extending mandatory controls to other crops. The final portion summarizes advantages and disadvantages of mandatory controls.

Current Mandatory-Control Programs

The peanut and tobacco programs are examples of mandatory-control approaches that have survived three and four decades, respectively, through evolutionary processes. These programs give insight into the potential structure of mandatory controls applied to a broad range of crops.

Peanut Program. Mandatory supply control for peanuts prior to 1981 included both acreage allotments and poundage quotas. The Agriculture and Food Act of 1981 abolished peanut allotments for the 1982-1985 crops but retained a two-price plan and volume quotas. The minimum national volume quota is gradually adjusting downward to achieve a 35 percent reduction between 1978 and 1985 (Miller, 1983).

"Quota" peanuts are those produced within the poundage quota and are for domestic edible use. "Additional" peanuts are those marketed in excess of the poundage quota or those marketed from a farm with no base quota. Additional peanuts are intended for export as edible nuts. Prior to 1977, all peanuts were supported at the same high price, thereby restricting U.S. exports. The current program features a two-tier price system, with the quota peanuts receiving the higher price. Quota and additional peanuts not purchased by domestic and world markets are purchased at the quota or additional loan level by the Commodity Credit Corporation. The current program also allows peanut poundage quotas to be sold, leased, and transferred within a county and, under some provisions, within a state.

Tobacco Program. Tobacco production has been controlled through acreage allotments and/or poundage quotas since the Agriculture Adjustment Act of 1938. Currently, under the Agriculture and Food Act of 1981, production of burley and flue-cured tobacco is restricted by poundage quotas. Some of the lesser-volume types are still produced under acreage allotments. The tobacco price-support program works through farmer-owned cooperatives which buy surplus tobacco with government loans. Under the new "no-net-cost" tobacco program enacted by Congress, producers contribute fees to a fund covering any loans the cooperative cannot repay. Hence, the government is responsible for only the administrative costs of operating the program. These costs are projected to be $16 million annually or approximately $20 per acre of tobacco (Carley, 1983). Another feature of the no-net-cost tobacco program provides for the lease and transfer of allocated quotas within a county. Owners of allotments can lease or sell

these rights separately from the farm to which the quotas are attached. As with the peanut program, the national marketing quota for tobacco has steadily declined through time; for example, the flue-cured quota declined 59 percent between 1975 and 1983 (Carley, 1983). The declining quota was associated with the declining share of U.S. tobacco in world markets.

Potential of Mandatory Controls for Other Crops

The relative success of mandatory controls for tobacco and peanuts, as measured by producers' acceptance, farm income, and monetary costs, raises the issue of extending these programs to other crops, such as wheat, feed grains, cotton, and soybeans. This issue is analyzed on the basis of two questions: First, would producers of these commodities accept quotas in national referendums? Second, what would be the economic impact of implementing such mandatory controls?

Farmer Acceptance. Many farmers have tended to view mandatory controls as a "last resort" alternative, preferring more freedom in making production decisions. In 1962, Congress defeated enabling legislation to extend mandatory controls to a wide range of farm commodities. Some of the referendums authorized by Congress were defeated by producers. However, a tobacco referendum which was defeated in one year was passed the next year after producers experienced record crop production and attendant low prices, indicating that farm prices influence farmers' acceptance of mandatory controls.

Mandatory controls for wheat were authorized in the Food and Agriculture Act of 1962. Under the proposal, producers were to be issued certificates limiting marketing for domestic and for export needs. Although two-thirds of the wheat producers had to approve the program before it could be implemented, the referendum in 1963 was not approved by even a simple majority. Mandatory production-control programs have been proposed numerous times since 1963 to bring farmers an acceptable income from the market at minimal federal expense. But none of the proposals has been implemented for major commodities.

Economic Impact. Current economic problems of agriculture are not confined to specific crops. Given current demand, there is surplus aggregate production capacity, defined as more resources in farming than can earn returns comparable to those in other sectors in the absence of income support. The industry problem cannot be solved by extending mandatory production controls to one or a few crops. Resources diverted from the production of the controlled crop would be switched to other crops which were not controlled. Hence, in the absence of associated acreage-diversion programs, mandatory production controls would have to be implemented for virtually all crops to address the overall problem of surplus crop-production capacity. However, empirical results will be reported for only wheat, feed grains, soybeans, and cotton.

The economic impact of any control program depends upon the extent to which production and/or marketing is controlled and upon the price elasticity of demand. Estimates in Table 2 indicate the extent to which output (assumed equal to marketings) would have to be restricted for a marketing-quota program to achieve 75 percent of 1910-1914 parity prices. In the long run, output of these major crops would have to be restricted to 30.8 to 68.5 percent of 1982 output to achieve 75 percent parity prices. This approach might require an even larger reduction in acreage if production concentrates on better land. For these four commodi-

Table 2. Long-Run Effects of Mandatory Controls Upon Selected Crops

	Wheat	Soybeans	Cotton	Feed Grains
Actual 1982				
Price[a]	$3.52/bu.	$5.78/bu.	$.55/lb.	$2.36/bu.
Output[a]	2,805 m. bu.	2,260 m. bu.	5,694 m. lb.	9,241 m. bu.
Mandatory Controls With 75%-Parity Price				
Price[b]	$5.44/bu.	$9.65/bu.	$.89/lb.	$3.74/bu.
Output with controls[c]	864 m. bu.	1,295 m. bu.	3,900 m. lb.	3,687 m. bu.
Output with controls as a percentage of 1982 output	30.8%	56.8%	68.5%	39.9%

[a]U.S. Department of Agriculture (1983b).
[b]U.S. Department of Agriculture (1982b).
[c]Output with controls, which is estimated to meet domestic and export needs, is based upon long-run price elasticities and 1982 prices, domestic utilization, and exports. Domestic demand elasticities were assumed to be −.30 for wheat, −.70 for soybeans, −.15 for cotton, and −.70 for feed grains (Ray and Richardson, 1978). Export demand elasticities were −1.67 for wheat, −.47 for soybeans, −.65 for cotton, and −1.41 for feed grains (Bredahl, Meyers, and Collins, 1979).

ties under these restrictions, income from the domestic and export markets would be only 72 percent of the 1982 level. This result is based upon long-term demand response to price. Short-term income gains would be greater than indicated.

Receipts in export markets would decline with a one-price system of mandatory controls; therefore, one option would be a two-price plan. Producers would be provided a domestic allotment accompanied by certificates which would attend any sales in the domestic market at a required price of, say, 75 percent of parity. Producers would market additional output in export markets at the lower world price.

Raising crop prices would have impacts upon other sectors of the farm and nonfarm economies, including consumers. Higher farm prices would not be absorbed by marketing firms and would be passed on to consumers. Higher crop prices would have a direct impact on retail prices of bread, cereals, and other foods made from these products. In addition, higher prices on crops fed to livestock and poultry would impact on producers and consumers of beef, pork, lamb, poultry, eggs, and milk. Estimates from Robinson (1975) and price differentials between average prices and 75 percent of parity prices for 1982 (as reported in Table 2) were used to estimate the impact on consumers from mandatory controls. Annual per capita consumer costs would increase $17.35 directly through foods produced from crop products and $51.70 indirectly through livestock products. The total impact of mandatory controls would be $69.05 per capita annually.

Evaluation of Mandatory Controls

Advantages of mandatory control programs include the following:

- Mandatory controls raise and stabilize farm commodity prices without the government costs required for voluntary paid-diversion programs or direct payments.
- Mandatory controls potentially are more effective in supply control than voluntary programs because all producers are required to participate in the programs. Hence, the "free-rider" problems associated with voluntary programs are overcome.
- Among the different forms of mandatory controls, marketing quotas are more effective than acreage allotments in reducing supplies because of the tendency for farmers to raise yields on the allotted acreage. Another benefit of marketing quotas over acreage allotments is that producers can combine inputs in a least-cost manner.
- Soil conservation goals could be met more easily to the extent that marginal acres would be taken out of production to increase efficiency.

Although mandatory-control programs have been used to achieve such policy objectives as increasing farm commodity prices and reducing payment costs, they have also been subject to considerable criticism. Disadvantages of the mandatory supply-control program include the following:

- Reduced output achieved through quota restrictions would raise food prices for consumers. The higher food prices would constitute a regressive, cost-of-living drain on low-income consumers since they spend a higher proportion of their income for food than do high-income consumers.
- Higher commodity prices resulting from mandatory controls would severely restrict U.S. exports of farm products. Exports of wheat, feed grains, soybeans, and cotton amounted to $23 billion in 1982. This figure would decline drastically in the long run under mandatory controls unless the program allowed for a two-price system, featuring lower prices for exports. Demand might be so responsive to price in international markets that revenue not only from exports but also from all sales of these commodities would fall after a few years.
- Allotments and quotas prevent efficient producers from increasing production and tend to keep inefficient producers in production. This problem is reduced to some extent if legislation permits buying and selling of allotments or renting allotments independent of ownership.
- Mandatory controls freeze production patterns which may become increasingly inefficient over time. Producers would be unable to produce at least cost. Allotment rigidities would slow the adoption of technological and market innovation.
- Anticipated income benefits from mandatory controls would be capitalized into marketing quotas or acreage allotments. When allotments were sold, the original owner would receive the expected future benefits through the capitalized value of the control instrument, while benefits would be lost to subsequent buyers or renters. Subsequent buyers or renters might press for ever-higher support prices from the government and for more restrictive allotments.
- Producers failing to participate in mandatory programs would face civil penalties, a severe problem if noncompliance were widespread. Administrative monitoring to avoid cheating would become increasingly burdensome and costly. Inducements to circumvent the program would rise with the program's success in raising prices and returns. Administrative and compliance problems with a comprehensive two-price program for all commodities could be overwhelming.
- Strong pressures would build to provide costly export and domestic food-consumption subsidies paid for by taxpayers.
- Because mandatory controls increase farm income

through market prices, it would be difficult to target benefits to needy farmers.

- Mandatory controls provide government-bestowed economic rents. Beneficiaries would spend large amounts lobbying to retain or expand such rents. Resources used for lobbying probably would be socially wasteful.
- Although mandatory controls may be used to raise expected prices of farm commodities, mandatory controls by themselves do not necessarily reduce price instability or assure stable food supplies to consumers. Hence, price supports and commodity stock-reserve programs might need to be linked with mandatory controls. Also tendencies to increase the output of commodities not covered by controls using resources released from controlled commodities would bring pressure for control of all commodities, for a government resource-diversion program, or for both.

Dairy Policy

Most policy options in this report relate directly to crops. Economic problems in the dairy industry are unique and receive separate treatment in this section.

Performance in the dairy sector has placed stress on current dairy policies and programs. The U.S. Department of Agriculture purchased the equivalent of over 10 percent of all U.S. milk production during 1982 (14 billion pounds) at a cost of $2.2 billion to support the price of milk. No significant reduction in government purchases is expected for 1983. Nor is there much chance for major corrections in 1984, barring immediate policy changes or dramatic external shocks, such as a large increase in feed prices.

The press and general public tend to measure the magnitude of the dairy problem by the cost to taxpayers. A more serious issue is resource misallocation. Current policies and economic events have attracted more resources than are needed into dairy production, processing, and marketing. Some of these resources have been attracted to regions of the country where their continued use in the dairy sector is likely to be inefficient as supply and demand come into better balance.

Relief from current problems in the dairy sector will not be easy or painless. Time lags in adjusting production and marketing patterns in response to economic incentives make it difficult to attain policy objectives. It is not likely that dairy policy objectives can be achieved unless (1) the origins of the current problem are known, (2) the probable consequences of suggested options are understood, and (3) emphasis is placed upon the policies that could resolve the problems. This section attempts to shed some light on these three needs.

Programs and Objectives

The dairy sector is affected by many regulations and policies. The major economic policies are the price-support program (and related restrictions on imports) and milk-marketing orders. Prices of manufacturing-grade milk are supported through USDA purchases of cheese, butter, and nonfat dry milk powder. Since 1970, dairy support prices have almost tripled (from $4.66 to $13.10 per hundredweight) while the U.S. general price level (as measured by the gross national product implicit deflator) increased 2.3 times.

Federal milk-marketing orders use the manufacturing-grade milk price which is supported by USDA as the basis for all milk prices in all orders. To this base price, a Class I differential is added to derive the price of milk used for bottling (fluid) purposes. The Class I differentials are based primarily upon transportation costs from the upper Midwest to milk orders in other regions. Class I differentials have not been changed significantly since 1967, and thus they now reflect less than half the cost of transportation. Class I differentials in several orders have been adjusted up and down by minor amounts to achieve a desired alignment of prices among orders, but the average Class I differential has ranged from $2.08 to $2.11 since 1970. Thus, changes in all milk-order prices since 1970 were the result of changes in the price of manufacturing-grade milk which was supported by USDA. If the price-support program had the effect of increasing the price of manufacturing-grade milk by 50 cents per hundredweight in a given year, it also had the effect of increasing the price of all milk sold under marketing orders by exactly 50 cents.

The absence of further discussion of marketing orders does not mean that they are unimportant or that changes in them will not receive attention. In the past ten years, considerable debate has been focused on the merits of marketing orders. Changes in marketing orders to make reconstituted milk more competitive with fresh milk have been proposed. Further modification of orders will be proposed. But the trend in marketing orders has been toward deregulation. Market forces have been establishing prices above the administratively set minimum prices. This trend is expected to continue. The price-support program has clearly dominated other dairy policies and programs since 1970. Attention thus is focused on that dairy program.

The stated objectives of the dairy price-support program are: (1) to assure an adequate supply of milk, (2) to establish prices that reflect changes in the cost of production, and (3) to assure a level of farm income that will maintain needed production capacity. The stabilization of prices and production is at least an implied objective. Other dairy programs have similar objectives. A brief assessment follows of the extent to which these objectives have been accomplished.

Achievement of Objectives

Adequate Supply. Since 1970, milk production has

been at levels which were considered at times to be inadequate and at other times to be excessive. During 1973 and 1974, imports of dairy products were greatly expanded because of high domestic retail dairy-product prices caused by low levels of U.S. milk production. Since 1980, USDA purchases have been perceived as burdensome.

Cost of Production. Based upon USDA cost-of-milk-production studies, correspondence between milk-support prices and production costs has been erratic. Net income from dairy farming varied from a loss of $0.62 per hundredweight in 1974 to a profit of $2.81 in 1979. Price supports were low relative to production costs in 1973-1975 and were high relative to production costs in 1978-1982.

Level of Income. Since 1970, the support program has not prevented dramatic changes in dairy farmers' income. Family income from dairying in the past decade probably reached its low point in 1974. In that year, the $4,842 family income from dairying for a farm with 48 cows was below the poverty level for a family of four ($5,038). Off-farm income may have brought the average dairy farm family up to or above the poverty threshold. At the other extreme, family income from dairying in 1980 for a 54-cow herd ($28,983) exceeded the income of the average nonfarm family. This farm-nonfarm income difference would be wider if off-farm income were added.

Price and Production Stability. Milk prices and production normally do not change much from one year to the next. In the decade of the 1970s, however, there were wide swings in both. This is partly reflected in annual USDA removals which varied from 1.2 to 14 billion pounds of milk equivalent. Annual net government expenditures varied from $31.4 million to $2.2 billion.

Reasons for Low Achievement

Many factors have contributed to the difficulty of achieving dairy policy objectives since 1970. Some of these factors are identified to assess obstacles to goal accomplishment in the 1980s.

Natural Causes. During the 1970s, droughts, a corn blight, shortfalls of grain production in other countries, and other uncontrollable events introduced shocks to the dairy sector. These shocks may be no less frequent or severe in the 1980s.

Other Agricultural Policy. Farm programs for grains and some other commodities were changed in the 1970s. The new programs were more market-oriented and made feed prices more volatile. Shocks to the dairy sector from this source will continue in the 1980s.

Macroeconomic Policies. Foreign currency exchange rates, inflation, two recessions, tax policies, trade policies, energy policies, and the like have all had major impacts on the dairy sector. In fact, these events probably had greater impacts on the dairy industry than did dairy programs.

Political Lag. Politicians did not move quickly enough in discussions relating to annual price supports.

Policy Options

The list of existing and proposed dairy policy instruments is long and varied. This may reflect (1) disagreement about the existence and persistence of problems in the sector, or (2) lack of a consensus on remedial action. Many of the proposed policy instruments are complex, are clothed in technical terms and industry jargon, and are suggested in various combinations. There are trigger prices, price formulas, multiple-price plans, base plans, milk taxes, and the like. To avoid becoming bogged down in the morass of specific policy mechanisms and losing sight of the important policy options, only a short list of selected options is discussed. Two major dairy policy objectives are then reconsidered. An important choice facing the public concerns the weights to be placed on these two objectives.

We consider the principal options to be the current support program, a milk-tax plan, a sales-expansion plan, and a quota plan. These options are discussed in the following paragraphs.

Current Support Program. The main features of the current support program could be left intact with changes in the price mechanism. The program now uses a parity price which is primarily moved by the indexes of prices paid and received in the farm sector. It could be modified to recognize changes in productivity and could be made more flexible relative to the parity range used in setting support prices. A parity formula could be developed for the dairy sector which would be more responsive to feed costs and other factors influencing milk production and consumption. Various mechanisms have been proposed to trigger higher or lower support prices based upon USDA dairy purchases.

Some of the advantages of modifying the current support program are:

- A better balance of milk production and consumption might be achieved.
- Major changes in legislation may not be required.
- Agreement on a course of action may be quicker for a familiar program than for one that is unfamiliar.

Disadvantages are:

- Mistakes can be expensive in terms of federal cost and resource allocation.
- The program is more vulnerable to short-term political pressures than are other options.
- This approach was abandoned for other commodities in favor of more market-oriented programs.

Milk Tax Plan. An assessment could be levied on milk producers to help pay for the support program cost, and some of this assessment could be returned to producers who freeze or reduce milk production. This approach is authorized by the Omnibus Reconciliation Act of 1982. Its impacts are somewhat similar to those under the current or a modified support-price program. A tax on dairy outputs or inputs could be used to provide incentives for adjustments that would achieve policy objectives other than income enhancement. In the past, most of the incentive for such adjustments has been provided by federal payments.

Some of the advantages of the tax plan are:

- Costs to taxpayers would be reduced and could be nil.
- Those who receive the benefits would pay the cost.
- The tax could provide a strong incentive for balancing production and consumption.
- The program would not favor one size of farm over another.

Disadvantages include the following:

- An equivalent support price in place of the assessment would lower dairy product prices, benefit consumers, provide some stimulus to consumption, and thus lighten the burden of reducing production.
- Legal and other uncertainties would be posed by a new and untried program.
- Higher administrative costs would result, especially if part of the tax were refunded.

Sales-Expansion Plan. Programs to expand domestic consumption of dairy products are operated under state and federal orders, by producer organizations, and by USDA (e.g., special milk program, school lunch program, and school breakfast program). Although federal programs appear to be entering a period of contraction, expansion of other programs has been proposed. Mandatory deductions for advertising and promoting the consumption of dairy products are being considered. There is also interest in export dumping, now widely practiced by other countries. Virtually every country in which dairy production is of some importance (and many of those where it is not), except New Zealand, has dairy regulations and policies with impacts similar to those of the United States. In many cases, market interventions are more severe than are those in the United States. It is common to find dairy products traded between countries at prices a fraction of the price in the selling nation. The advantages and disadvantages of sales-expansion plans were more fully developed in the section on that topic.

Quota Plan. Various types of quota plans have been proposed as a means of balancing milk production and consumption at predetermined prices. The quota could be fixed on the basis of production history or could be modified over time by changes in future production and consumption. Most quota plans would involve two or more prices — a higher, administered price for milk produced within the quota and a lower, market-clearing price for milk in excess of the quota. Milk produced in excess of the quota would receive the market price rather than a blend price. Milk quota plans now are administered by several state milk-control agencies and dairy cooperatives.

Some of the advantages of quota plans are:

- Tax-based costs could be nil.
- Production and consumption could be kept in balance.
- Price signals reflecting the marginal value of milk would be clearer than at present.
- Management decisions might be improved.

Some disadvantages are:

- Entry barriers would be raised.
- The value of quotas would become capitalized into control instruments.
- Resource allocation might be distorted.
- Administrative cost could be high.
- Milk consumers would pay a premium for quota milk.

Other advantages and disadvantages are discussed in the referendum-quota (mandatory control) section.

We turn now to the policy objectives. The principal policy objectives for dairy prices and production relate to the stability of prices and production and to the level of prices and incomes. Policies can differ, depending upon the weights placed by the public on each of these objectives.

Price and Production Stability. The current or modified support program could be designed with the objective of stabilizing prices around market-clearing levels. As suggested earlier, many unexpected events could result in other than market-clearing prices in a particular year.

One option would be for the government to operate a storage program with acquisition and release prices for milk and milk products. The reserve would have an

upper limit. When the upper limit is reached, no more supplies would be added to reserves, and producers would receive the market price for additional output. Government would purchase products in some years and sell them in commercial markets in other years. Except for predetermined uses of products purchased, costs to taxpayers would be limited to storage costs. Given the nature of international trade in dairy products, domestic prices and production would have little effect on our foreign sales.

In a sector with a high degree of asset fixity and lagged production responses, as is the case for dairy production, instability and uncertainty can have high social costs. It is particularly important to attract only those resources necessary to sustain production at longer-run, market-clearing levels. A reduction in dairy farm numbers and resources used in dairying would accompany a move toward market-clearing prices.

The process of getting to market-clearing prices might require rather drastic short-run actions. Support prices could be set to obtain market balance eventually, but the cost of reaching that balance might be high. Also, because of lags in adjustments, measures seemingly appropriate to reduce production in the short run might result in overreaction and shortage in the long run. A program could be designed, with or without federal cost, which would give strong incentives to reduce cow numbers quickly. Each milk cow is almost like a machine, pumping out about 12,000 pounds of milk per year in the face of all the crises, disruptions, and shocks. Milk cow numbers must decline if market balance is to be obtained. At issue is the desired time interval and means for reducing cow numbers.

Price and Income Levels. If it were deemed desirable to raise milk prices above market-clearing levels to enhance the income of dairy farmers, a quota plan might be used to reduce government purchases and costs. Alternatively, export dumping might be used for the same purpose. The support price of milk in excess of the quota could be set so low (below the marginal cost of production or at the value obtained in foreign markets) that little milk in excess of quota would be produced.

One option would be to provide for higher administered prices on an assigned proportion of milk production (base) and a free market on additional milk.[8] The higher price on the base milk would cover additional resource costs and assure supplies. The base would provide some income security to producers. Reliance would be placed upon the private trade to manage storage and stock acquisition and release functions. This quota approach would exacerbate problems associated with capitalization of the value of the milk quota. Unless the quotas could be sold or rented, they would tend to freeze production patterns with resulting built-in inefficiency. Quotas might be given a specified life, after which they would either be renegotiated or terminated. As with the previously discussed policy objective, special short-run actions might be taken to reduce the adverse impacts of the current situation and aid in transition to a more permanent policy.

[8]The issue of whether to have a base is separate from the issue of what constitutes the base. One approach would be to include only Class I milk in the base, so that adequate supplies would be assured. Because manufactured milk products are stored and transported more easily than fluid milk, they might be allocated by the market alone. This two-price plan would have strong interregional effects.

Summary

The decade of the 1970s was a time of low achievement of the price-management objective of the dairy price-support program. The price-support program has clearly dominated other dairy programs which influence industry performance. The extent to which the policy objectives would have been achieved in the absence of the price-support program is unknown. Although dairy policy successes or failures cannot be attributed to that program alone, the price-support program must bear some responsibility for the less than desired performance in the dairy sector. Beyond this, the support program was unable to cope with the many shocks that adversely affected achievement of objectives.

Dairy programs featuring price supports above longer-term, market-clearing levels in the absence of some form of supply management are not feasible without continuing surpluses and high government cost. Given limitation of demand expansion, two broad approaches are feasible to bring supply-demand balance and reduce federal costs. One is supply control in any one of various forms with prices supported above free-market levels. The other is to allow prices to fall to market-clearing levels and not control production. A combination of these approaches could entail a base quota and attendant higher price, with marginal production receiving the market price. Also a government-stock operation could be used to stabilize supplies but with a maximum limit on stocks. Advantages and disadvantages of the various supply-control instruments (paid versus mandatory diversion, etc.) and of a market orientation are discussed in other sections.

Modification of Existing Programs

Despite calls for new directions in commodity programs and widespread dissatisfaction with existing programs, Congress may merely extend or modify existing programs. The focus of this section is on program modifications to achieve four primary policy goals: (1) commodity-price and farm-income enhancement, (2) commodity-price and farm-income stabilization,

(3) efficient agricultural resource allocation, and (4) lower cost to taxpayers. The policy instruments analyzed include: (1) target prices and loan rates for commodities, (2) grain-storage programs, and (3) production controls. The current policy and potential modifications for each policy instrument are discussed in the following paragraphs, with primary emphasis on grains.

Target Prices

Target prices and deficiency payments became part of U.S. farm policy in the Agriculture and Consumer Protection Act of 1973 and were extended with minor modifications in the Food and Agriculture Act of 1977 and the Agriculture and Food Act of 1981 (Johnson et al., 1982). Target prices have been established for all major food and feed grains and cotton. Whenever the commodity market price falls below the target price, deficiency payments equal the shortfall of average market price below the target price.[9] The total deficiency payment received by a farmer participating in the program is equal to the per-bushel or per-pound deficiency payment times his eligible production.[10]

Considerable economic and political debate has focused on the determination of target prices. The 1973 Act contained a formula based on the "Index of Prices Paid by Farmers" and a three-year moving average yield to adjust annually the initial target-price levels established by the Congress. Changes in target prices in the 1977 Act were based upon changes in average production costs per unit of output. Dissatisfaction with this approach led Congress to prespecify the annual target price for each crop covered by the 1981 Act.

Target prices above expected market prices encourage farmers to expand output. Because many farmers have been able to expand acreage bases and prove higher established yields used to determine deficiency payments, the target price essentially has become the supply price for additional output. If there are no acreage restrictions, farmers attempt to increase crop acres and yields. If there are acreage limitations, farmers attempt to increase acreage bases and yields on the more productive acres that remain in production. The consequences are resource misallocation and overproduction. Larger output depresses market prices and increases total deficiency payments. As a result of higher target prices and record production, total deficiency payments for wheat and corn in 1982 were $460 million and $289 million, respectively.

Determination of the target-price level by government is, in part, a distribution decision (i.e., how much income to transfer from taxpayers to farmers) and, in part, an economic efficiency decision. Target prices and loan rates set above long-run equilibrium prices or set at ratios among commodities which do not reflect normal feed-value relationships result in inefficient grain production and consumption patterns (Johnson, 1981).

Cost of production as a criterion to determine target prices has many theoretical and practical limitations (Pasour, 1980; Martin, 1977; Krishna, 1982; and Stovall and Hoover, 1979). The cost of specialized resources (land, farm operator labor, and management) is demand-determined and not independent of the product price. Including land price or cost in the support price can involve circularity, as a higher support price increases production cost, which in turn increases the support price. Differences in production costs among farmers and regions are great. The choice of whose cost to cover by the target price is arbitrary. With a given target price, lower-cost farmers can reap a windfall profit, while higher-cost producers may not cover costs.

Under the 1977 Act, target prices were to be adjusted annually by the average changes in nonland production costs per unit of output between the first and third previous years (Tweeten, 1981a, p. 74). Per unit costs were especially sensitive to yields. A high yield in the previous year reduced production cost per unit and called for lower target prices. But the favorable weather of the previous year could not be expected to continue; hence, the production cost and target-price adjustment seemed unrealistic for the future. Consequently, Congress acted to modify target prices set by the 1977 Act. Target prices were legislated rather than set by formula under the 1981 Act. Because inflation was lower than anticipated by Congress, the legislated target prices resulted in rising *real* target prices that presumably were not intended by those who passed the legislation.

Modifications in Target Prices

In principle, target prices can provide an acceptable income to farmers without significant production distortions and can allow market prices to be low enough for the United States to compete in world markets. One option is for target-price levels to be set no higher than projected nonland cost of production per unit on commercial farms in regions of comparative advantage, with yields determined by a moving average of several years and an inflation rate based on recent trends. Land and perhaps other overhead costs would not be included in the formula for setting target prices. These procedures might be suitable for setting initial target prices and adjusting them, but the two issues are separate —

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[9]If the loan rate is above market price, it replaces market price in the formula. The formula applies to the first 5 months of the marketing year for grains or calendar year (which includes the first 5 months of the marketing year) for cotton.

[10]All farmers are eligible to receive deficiency payments unless production controls (set-aside, paid diversion, or reduced acreage program) are required. The Secretary of Agriculture has the discretionary authority to determine if production controls are necessary.

one formula can be used to set initial prices and another to adjust prices.

The advantages of the target-price option include the following:

- The option provides some farm income support while keeping the United States competitive in world markets, reducing federal monetary outlays, and keeping U.S. food prices low.
- Nonland production costs as the basis for target prices would avoid feedback of target prices to production costs through land price.
- Use of other formulas, such as legislative impulse, prices paid by farmers, or the parity ratio, is less defensible.

Disadvantages include the following:

- Target prices need to be adjusted downward when supplies are large to reduce the cost to taxpayers and to discourage production.
- Total cost outlays are highly unpredictable from year to year under this procedure.
- There are some theoretical and practical limitations to calculating appropriate nonland production costs and target prices.

Commodity Storage Programs

Nonrecourse loans have been a central feature of U.S. farm programs for 50 years. By pledging a quantity of a commodity as collateral, a farmer can obtain a loan from the Commodity Credit Corporation (CCC) at an interest rate at or below the cost of money paid by the U.S. Treasury. Loans are made without recourse, meaning that the farmer may elect to repay the loan plus interest within a specified period and regain control of the commodity or default on the loan with no penalty. If he defaults, ownership passes to the CCC, fully satisfying the loan obligation, including accumulated interest, regardless of the current market price (Knutson, Penn, and Boehm, 1983, pp. 213-16).

The loan rate establishes a minimum price for the participating producer and, hence, reduces price risk. If industry-wide program participation is sufficient, the loan rate provides a floor under the industry market price and allows orderly marketing because of less pressure to sell at harvest. An increase in the loan rate reduces price risk and encourages production, especially if above the market price. As the loan rate is increased, domestic consumption and exports decline, and CCC holdings increase. Increases in loan rates can result in inefficient resource allocation, large CCC outlays, accumulation of stocks, and reduction in export sales.

Historically, loan rates were set at a specified percentage of parity. Real loan rates have been adjusted among programs in keeping with changes in production costs and other factors. Recent farm legislation has established a minimum loan rate and has given the Secretary of Agriculture restricted authority to adjust loan rates. Political pressure to tinker with loan rates is difficult to resist (Johnson, 1981). Also relative loan rates often differ from the relative feed values or historic market values, causing intercommodity and interregional distortions in production and utilization.

Loan rates retained in future legislation could reduce price risk to farmers in periods of surpluses but would need to remain below long-run equilibrium market prices to avoid excessive market distortions and federal cost. Because loan rates might need to be adjusted from year to year to regulate reserve capacity held in diverted acres and stocks and to respond to market conditions, one option would be to give the Secretary of Agriculture greater flexibility to adjust loan rates. If his objective was to hold down federal costs, he would be constrained by high costs of deficiency payments if he set the loan rate too low and by high costs of diverting acres and holding stocks if he set the loan rate too high.

A second possibility would be to have loan rates established to "track" the market based on a three-year or five-year moving average of market prices. A modification would be to set loan rates (and perhaps target prices) at some prescribed proportion of the moving average of market prices. A moving average of prices provides short-term price security at the farm level while allowing longer-term price-support adjustments to market conditions. A shortcoming of the moving-average price support is that it may give incorrect signals regarding the need to adjust resources among commodities and economic sectors of the economy. When a period of short supplies and high product prices is followed by a period of excess supply and low market prices, the support levels provided by a moving-average price in the latter period may be in excess of the cost of production and long-term market-clearing price. The result may be excessive output and resources in the farming industry and/or high federal outlays to support prices, control production, and store surpluses.

Until the 1977 Act, most government grain storage resulted from defaults on CCC loans. The 1977 Act established a Farmer-Owned Reserve (FOR) which with minor modifications was continued by the 1981 Act (Johnson et al., 1982). The FOR is, in essence, an extended loan program. In return for placing commodities in the FOR, farmers currently receive a higher loan rate than the regular price-support loan, and an annual storage payment (26.5 cents per bushel). Farmers also may not have to pay interest on the FOR loans. In return for these benefits, farmers agree not to market the grain until the market price reaches a specified release price. Farmers may, but are not required to, sell their FOR grain at the release price. Incentives for sale

are provided by terminating interest subsidies and storage payments.

The intent of the FOR is to stabilize commodity prices by encouraging farmers to accumulate stocks when supplies are large and prices are low and to release grain to the market when free stocks diminish and market prices rise. The presumption is that the private trade alone will not carry adequate stocks and that farmers are due some compensation for the lower average market prices that result from holding additional stocks.

Much of the FOR debate focuses on the level of the entry loan rate and release price and the size of the reserve. Administrators frequently have modified FOR storage rules, have used the reserve to enhance rather than only stabilize farm commodity prices, and have used FOR as a substitute for supply control. The result has been confusion among farmers and traders and reduced marketing efficiency. If entry is unrestricted and loan rates are above long-run equilibrium market prices, farmers will produce for the FOR, market prices will rise, domestic consumption and exports will decline, and federal costs will increase.

The FOR discourages other countries from holding stocks. Also as U.S. free stocks are used up and market prices rise toward the release price, the market response becomes predictable. Competing exporters can undersell us, and our domestic price will remain at or just below the release price.

Modifications in Commodity Storage Programs

If a sizable government role in stock operations is judged desirable, large reserve holdings and activity could be achieved by an acquisition price near long-run equilibrium market price and a narrow spread between acquisition and release price. If the role of government is to assure having stocks for responding to "catastrophic" occurrences only, the reserve might have a maximum limit, and the release price would be relatively high. The latter option would encourage greater stock activity by private firms. Excessive accumulation of stocks and federal costs could be avoided by placing a ceiling on FOR stocks, with unfilled capacity prorated among producers according to their production base.

Given the advantage of stocks in the FOR rather than in the hands of the Commodity Credit Corporation, the FOR might be continued with incentives reduced to produce for the reserve. The FOR loan rate might be set at the regular nonrecourse loan rate, and FOR entry might be allowed only after commodities have been under the regular loan. The Secretary of Agriculture could be given the authority to increase the FOR loan rate if stocks were low.

Advantages of limits on the FOR reserve include the following:

- The option would reduce incentives for farmers to produce for the FOR when stocks are already excessive.
- Moderate price stabilization would be provided based on stock levels that have been indicated as adequate by economic and statistical studies.
- Once desired stock levels are achieved, prices would fall to levels competitive in world markets.
- Monetary costs would be held down.
- The option would supplement, but not replace, the efforts of the private storage trade to provide adequate stocks.

Disadvantages of limits on the FOR reserve include the following:

- A maximum limit on the FOR could force unredeemed stocks acquired under the regular loan program to come into the hands of the government rather than farmers.
- Frequent program modifications, including changes in acquisition and release prices, and in the allowed size of the FOR could increase uncertainty and reduce marketing efficiency.
- Overall stock levels might be reduced, increasing the chances of short supplies and price instability.

Production Controls

Although the technique has varied, production controls have been a central feature of U.S. farm programs for 50 years. Supply controls for grains have been on acres rather than marketings and have taken numerous forms. The 1981 Act provides for three ways, at the discretion of the Secretary of Agriculture, to limit grain acreage: a reduced-acreage program, an acreage set-aside program, and a paid acreage diversion.[11] A paid acreage-diversion program is crop specific and requires a farmer to devote to conservation purposes a specified percentage of that crop's base acreage. A set-aside program gives the farmer flexibility to plant crops of his choosing, but he is required to devote to conservation purposes a specified percentage of the

[11]The paid *acreage-diversion program* provides the producer a government payment per unit of a commodity to reduce output. The *reduced-acreage program* provides no payment per unit reduction in output but requires a specified diversion by the producer to be eligible for price supports and commodity loans. These two types of programs operate concurrently in current wheat programs along with the payment-in-kind (PIK) program. The PIK program operates similarly to the acreage-diversion program except payment is in kind rather than in cash. Acreage-diversion programs might be operated with or without a sealed-bid system and diverting land on a part-farm or whole-farm basis. The *set-aside program* requires a farmer to convert a prescribed proportion of his normal cropland acreage to soil-conserving uses. The farmer is then eligible for price supports and other program benefits, and he can plant whatever crops he chooses on acres not set aside.

cropland acreage normally planted for harvest. If an acreage-limitation or set-aside program is in effect, farmers must participate to be eligible for commodity loans and deficiency payments. The Secretary of Agriculture can authorize a paid land-diversion whether or not a set-aside and reduced-acreage program exists. The diversion payments may be in cash or in kind per unit of production times the farmer's established yields, or they may be based upon bids submitted by producers (Johnson et al., 1982).

Since the early 1960s, farmers and government have favored voluntary programs rather than mandatory programs for grains despite generally greater government costs for voluntary programs. Whether under voluntary or mandatory programs, production cutbacks will increase market prices and thereby reduce deficiency payments and farmers' use of nonrecourse loans and the FOR. Acreage reduction programs generally reduce the efficiency of resource allocation and reduce the economic welfare as measured by the real value of all goods and services produced and consumed. However, economic welfare costs tend to be smaller for voluntary than for mandatory programs. Acreage reduction programs can reduce soil losses on marginal lands that are better suited for grass or trees than for crops. The set-aside approach allows farmers greater flexibility in production but is less effective than an acreage-diversion program in reducing output of specific crops. The paid acreage-diversion is probably the most cost-effective, short-run, voluntary approach to restrict production and raise farm income, especially if a bid procedure is used and allows whole farm retirement (see Tweeten, 1979, pp. 491-93).[12]

Slippage is a problem with voluntary acreage-control programs. While some farmers take land out of production, others expand their crop acres. Participating farmers divert inferior acres, apply more fertilizer and other inputs to cropland not diverted, and sometimes graze diverted acres or harvest hay from them. The counting of acres (double crop, fallow, etc.) can also contribute to slippage problems. Tweeten (1977) concluded that, partly due to lax enforcement, three acres of set-aside removed only two harvested acres and that the productivity of set-aside acres averaged no more than three-fourths that of producing acres.

Determination of base acres adds administrative complications, inequities, and economic inefficiencies. Farmers may be encouraged to bring marginal acres into crop production to establish a larger acreage base. Cross-compliance and offsetting compliance requirements may reduce slippage but result in program complications and reduce program participation. Under cross-compliance, a farmer who wishes to participate voluntarily in an acreage-reduction program for one crop must participate in government programs for all crops grown on his farm. Offsetting compliance applies across farms. This requirement results in management complications if several renters and/or landowners are involved and if some but not all parties want to participate in the government program.

The payment-in-kind program offers farmers commodities instead of cash for reducing their crop acreage (U.S. Department of Agriculture, 1983a). PIK can bolster commodity prices and net farm income with only modest impacts on food prices. Under circumstances of very excessive commodity stocks and the need to reduce output, PIK can be more cost-effective than a cash-diversion program.[13] But it is more cost-effective to pay farmers to reduce output *before* rather than *after* a crop has been planted and excessive stocks have been accumulated. It is more cost-effective to pay farmers cash to reduce output so that stocks do not reach excessive levels suitable for a PIK program. This procedure would avoid very large annual acreage withdrawal necessary to draw down massive stocks — a source of special hardship for agribusiness firms and rural communities.[14]

Modifications in Current Programs to Reduce Treasury Costs

Existing commodity programs could be modified to reduce Treasury outlays. To accomplish this objective with voluntary diversion programs without a sharp drop in farm income, cash outlays would need to be used to divert as much production as feasible per dollar of program payments. Various options could further this objective.

Option 1. Reduce or eliminate loan and target prices and rely mainly on a paid acreage-diversion program. A problem with this approach would be that it would allow more price instability arising from unpredictable conditions affecting supply and demand after acreage had been diverted. Errors would be unavoidable in setting acreage-diversion goals, and yields would be unpredictable. A problem with eliminating the target price would be the loss of the direct-payment advantages discussed in that section of this report. An alter-

[12]Long-term contracts (e.g., up to ten years) remove more production per program dollar than do short-term contracts, but they lack flexibility to respond to the rapidly changing supply and demand conditions characterizing modern agriculture. As noted later, long-term contracts may be useful for erosion-prone cropland.

[13]Excessive reserves have almost no opportunity cost to the government because expected future storage and interest costs offset expected salvage price.

[14]Lower support prices and, hence, lower market prices also reduce the need for a PIK program. Maintaining farm markets and output benefits agribusiness firms and rural communities through the economic multiplier effect.

native would be to set loan and target prices at minimum feasible levels, so that market prices would encourage utilization and discourage production at home and abroad. Either place an upper limit on the FOR (if the FOR loan rate is above the regular loan rate) or use the regular nonrecourse loan rate for the FOR so that additional production would receive the market price or the regular nonrecourse loan rate.

Option 2. Use a part- or whole-farm bid system of diversion, accepting for diversion those bids removing the most production per dollar of program payments.

Option 3. Encourage conversion of erosion-prone cropland to grass or trees through long-term diversion contracts and/or special conservation payments (Spitze and Martin, 1980, pp. 40-42). Here such efforts would be emphasized to the extent that they are cost-effective, but they might be favored for other reasons also, as discussed in the section on alternative agriculture.

Option 4. Establish acreage bases and program yields only in the initial year of a four-year program to reduce incentives to raise program benefits by increasing acreage and yield. An alternative would be to use a five-year moving average of past acreage and proven yields to establish bases and program yields.

Option 5. Tighten cross-compliance and offsetting-compliance features.

Option 6. Require the Secretary of Agriculture to estimate production requirements for meeting expected utilization and desired stock carryout before the crop year begins. Diversion established before the planting season would be designed to meet these expected targets, reducing or eliminating the need for a PIK program initiated after crops are planted or for holding excessive stocks.

Option 7. Require producers to identify specific acres to be diverted before crops are planted to reduce opportunities to divert crop failures arising from drought, excess moisture, or other adverse conditions.

Option 8. Remove the option for producers to withdraw from programs after they have signed up to participate.

Option 9. Provide diversion payments early in the crop year. Many farmers, especially those with cash-flow problems, would be attracted by this feature designed to raise participation rates.

These measures to reduce slippage and raise cost-effectiveness have advantages that include the following:

- Less federal cost would be required to maintain net farm income in the short run.
- The most marginal acres would tend to be removed from production because "rents" paid by the government to remove a unit of production tend to be lowest on such acres (see Tweeten, 1979, p. 491). Geographic concentration of diversions could be reduced by limiting the acreage for diversion to no more than a specified percentage of the base in each county.
- Lower support prices would create incentives to reduce output, expand marketings, and encourage movement of excess resources from agriculture, thereby taking some of the pressure off diversion programs to accomplish that objective.
- The approach might serve soil conservation objectives.
- Accumulation of costly, excessive reserve stocks would be avoided.

Disadvantages would include the following:

- Emphasis on acreage diversion to raise farm income would be cost-effective only in the short run. Political pressures might turn short-term into long-term diversions that would lose markets and reduce farm receipts to the extent that long-term demand for farm output is elastic.
- The proposed measures to raise cost-effectiveness would require more government administrative surveillance than do current programs.
- Reliance on production controls would distribute benefits according to production and market prices and, hence, would allow less opportunity for focusing benefits on small- and medium-size family farms than would a direct-payments program.
- Individual producers prefer a program that provides more rather than less payment per dollar of output diverted and that provides the same payment per unit of output diverted to all producers — something a bid system would not do. (One may argue, however, that if taxpayers pay the bill they should decide how to do it.)
- Lower support prices might reduce farm income at least in the short run.

Alternative Agriculture Options

A major concern is the impact of current farm programs on the structure of agriculture and the practices used in agriculture. Views on whether commodity programs have contributed to trends toward fewer, larger farms differ among social scientists. However, commodity programs could favor smaller farms more than do current programs if such favor is considered socially desirable. The medium-size farm is accounting for a declining share of all farms and of farm output. The trend is toward a few large commercial farms that produce most of the food and fiber in this country and a large number of relatively small farms that sell

little produce through the formal marketing system.

Benefits of farm programs have not necessarily gone to the most needy farmers. Some contend that farmers who practice soil conservation, who reduce the use of off-farm production inputs, and who are starting farming or face foreclosure should receive a larger proportion of government assistance than they do. There is disagreement as to whether farm commodity programs conserve or degrade soil resources, but there is wider agreement that programs could be structured to encourage conservation.

This section examines options for commodity programs to provide greater benefits to smaller farms, to farms practicing soil conservation, to farms with reduced use of off-farm production inputs and to beginning and distressed farmers.

Smaller Farms

Farmers with large acreages receive more program benefits than do those with small acreages because benefits are directly tied to either acreage or production. Payments are tied to the commodity and not the farming unit except when the $50,000 limitation per farm unit applies. The major issue is whether small and medium-size farms should receive more government assistance to help them survive.

Several options are available which place less emphasis on the quantity of the commodity produced and more emphasis on the farm production unit:

Option 1. Develop a two-level target-price system. The higher target price would be available for all participating farm units up to a specified maximum volume for each commodity. All of the commodity produced in excess of the maximum quantity established for the higher price would be eligible for a lower target price. In the case of wheat, for example, the maximum amount for the higher target price might be set at 5,000 bushels per farm unit. All farms could receive the higher target price (say, $4.00 per bushel) for the first 5,000 bushels of wheat produced. All wheat produced beyond the 5,000 bushel level would be eligible for a lower target price (say, $3.50 per bushel). The lower price should be the long-term market-clearing price so reserves would not be built up too high. The graduated target price or a single target price might be made available only on a limited number of bushels.

Option 2. Make a lump-sum direct payment to all farmers if the commodity price falls below a given level. The value of the payment, of modest size to constrain cash costs, would be the same for all farm units regardless of the value of the given commodity produced.

Option 3. Employ a graduated total payment. Payments up to, say, $5,000 per farm as calculated under current programs would be paid in full. Payments calculated in excess of $5,000 would be paid at some lower rate, say at 50 percent of the calculated value. The current $50,000 maximum payment limitation could be lowered under any of the preceding options.

Option 4. Employ a negative income tax. In this case, the farmer would receive payment from the government if his or her family income from all sources falls below a given level. The payment would be based upon a proportion of the differences between a target income and actual income.

Each of the four options has advantages and disadvantages. The payment limitations in the first three options would still provide more benefits to larger farms, at least up to a certain point, than to smaller farms. The two-level, target-price system has major administrative problems which are similar to those experienced with the $50,000 payment limitation. Could a larger farming operation be divided in such a way that the husband, wife, and children each could claim to have a farm and, thus, each be eligible for the higher target price? This problem also appears with partnerships and corporations.

Another problem is that a high target price does not assist those who have no production. Other problems of target prices, including incentives for overproduction, were discussed in earlier sections.

Stringent payment limitations would discourage program participation by larger farms. Nonparticipation of larger farms could be a problem if payments were part of an acreage-diversion program.

The income-maintenance or negative-income-tax option could provide the most assistance for families employed full-time on smaller farms. It would have the advantage of accounting for income of farmers from farm and off-farm sources and, hence, would not make payments to wealthy families with small farms and substantial nonfarm income. The program would increase the cost to taxpayers if other programs were continued. The option would raise questions concerning the justification for providing low-income farmers, as opposed to low-income nonfarmers, a guaranteed income.

Soil Conservation

Another concern is that current farm programs encourage cultivation of land subject to soil erosion. For example, to increase their wheat base in 1983, some farmers in the Plains States plowed native rangeland or land seeded to pasture after the Dust Bowl days. As long as the land must be cropped only in the previous year to receive program benefits, even marginal land can become economically profitable in a crop-fallow

rotation. Farmers can use their better-quality land for wheat production and divert marginal land. Some Midwest farmers placed corn and sorghum acreage in PIK and used time and equipment available to plow their pastures and plant soybeans. Many acres of newly tilled land are relatively susceptible to wind and water erosion; cropping this land runs contrary to the intent of many state and federal programs designed to reduce soil loss to tolerable limits and ensure clean water.

Several options exist to lessen the short-term gains resulting from poor resource-use practices or to encourage soil and water conservation practices in the public interest. Some of these affect wildlife resources and the esthetic environment as well.

Option 1. Require that farmers who have erodible land obtain a Soil Conservation Service farm plan to be eligible for certain types of loans. Such a cross-compliance program is already in operation under the Farmers Home Administration. Requiring that a plan be established and implying that it will be carried out are relatively easy, but these steps do not guarantee that the farmer will in fact carry out the plan.

Option 2. Require a farmer to achieve the soil-loss tolerance level or show definite progress in moving toward that level to continue receiving commodity program benefits. To determine whether the tolerance level for soil loss has been achieved, field by field and farm by farm, would be impossible in practice. Use of the universal-soil-loss equation to estimate soil loss on individual fields and farms would be very difficult. But certain practices are known qualitatively to reduce soil erosion, and their use can be observed readily. It would therefore be more practical to determine whether farm practices are moving in the direction of reduced soil losses.

Another major disadvantage of this cross-compliance program is that the consequences would not be felt equally by all farmers. Many farmers with severe erosion problems are unable or unwilling to bear the added expense of soil conservation. Some of this difficulty could be alleviated by targeting more public funds currently used to reduce soil erosion to farmers and regions with the most erodible land.

Option 3. Establish acreage bases on a five-year moving average of land which has been diverted or utilized for growing a crop. This option would reduce the probability of farmers cropping new marginal land.

The restriction on acreage bases eligible for commodity program benefits would be relatively easy to implement. But the restriction would continue inequities and might create rigidities because it would apply to land suitable for cropping as well as to land not suitable for cropping, and it would lock the future use of land into historical patterns until changed by subsequent legislation. The procedure would penalize farmers who have cared for land by keeping it in conservation cover. Such farmers would have less flexibility than others to participate in commodity programs and crop the land using conservation-tillage practices.

Option 4. Government purchase of a long-term easement for the cropping rights to erosion-prone land. This option could allow grazing or haying the retired land. It would alleviate, but not eliminate, the problem faced by farmers whose land is mostly erodible and who no longer would have an economic farming unit if their erodible land were retired. An extreme condition could be that all unprotected land in certain capability classes would be forced into Option 4.

Option 5. Outright government purchase of land for the public-lands system in erosion-prone regions where historically whole farm units have been in operation and are available for purchase. (The historical requirement, which might be, say, 10 years, is included to reduce the incentive to plow land that could not be farmed economically and then offer it for sale to the government.) This land would remain in the public domain for general public use until it becomes feasible to crop some of it again. A disadvantage of the whole-farm approach is that such units may have some cropland not subject to high erosion rates and for which the highest and best use is crop production.

Option 6. A combination of Options 4 and 5 where contiguous areas could be more effective units of public land than those that could be obtained by either Option 4 or Option 5. Options 4, 5, and 6 would help the country to reduce the amount of land in production — an important cause of overproduction — at the same time as the country would gain in land available for alternative uses.

Reduced Use of Off-Farm Production Inputs

Most farmers use off-farm production inputs, including farm machinery and fuel, seeds and other plant stocks, animals and feeds, and natural, processed, and synthetic agricultural chemicals, to the extent they are needed and available, and to the extent they are considered profitable.[15] Some farmers, however, cur-

[15]We have used in this section the descriptive term "processed and synthetic agricultural chemicals" because of the problems of definition and inadequate understanding that complicate discussions of use of chemicals in agriculture and elsewhere in the economy. All substances are chemicals. The crop residues, animal manures, limestone, phosphate rock, and other naturally occurring substances used by farmers to increase crop production without processing or with only drying, grinding, or both, are all chemicals. The gasoline and diesel fuel used in tractors are processed chemicals. In some instances, the effective ingredients supplied through "processed and synthetic" chemicals are identical with those supplied by "natural" products such as animal manures and phosphate rock.

tail use of certain of these inputs to reduce production costs while preserving most of their net income. Other farmers make no use or only limited use of certain off-farm production inputs because they are concerned about consequences for the environment (especially the soil) and the health of those who consume the products. They do not feel that the private costs (and returns) adequately reflect the social costs (and returns) of using certain off-farm production inputs for crop and livestock production.

Both of the latter two classes of farmers have reduced crop yields, and both are penalized when yields of protected crops are used as a basis for computing cash or in-kind diversion benefits. Several options might be considered to deal with the apparent inequity.

Option 1. Ignore the inequity. The small proportion of farm production, diverted acres, and profits that would be affected would not justify the government cost of developing and administering special program features for the farmers concerned. Even obtaining agreement on how to define concepts such as "organic farming," for example, could be a serious impediment in administering a special program.

Option 2. Use the net return per acre as a basis for establishing commodity-program payments. This option would not necessarily reduce the payment penalty associated with reduced use of inputs, and it would create administrative and other problems.

Option 3. Devise a criterion based upon reduced use of all off-farm production inputs or of selected ones, such as processed and synthetic chemicals, as a socially desirable goal. As an example, one might use as a criterion for commodity payments the number of dollars spent per acre for such inputs. The greater the number of dollars spent, the less would be the payments. If the magnitude of the payments were sufficient, this option would effectively reduce both the use of off-farm inputs and the production they otherwise would engender. Disadvantages would include increased food prices, reduced income from exports, and financial problems in the agricultural supply industries. Administrative problems, including the establishment of a basis for payments, would be severe.

Beginning and Distressed Farmers

Many farmers who began farming or greatly expanded their farming operation during the past decade are especially vulnerable to the depressed economic conditions of the 1980s because they have a high debt relative to their equity. In some cases, the value of their assets has depreciated to a level below their indebtedness. Some of these are marginal farmers who are poor managers, but many others are young, well-educated, and able producers in terms of conventional measures. At issue is the appropriate public policy to assist beginning farmers and others currently experiencing financial crises.

Government commodity programs discussed earlier in this report and designed to increase and stabilize farm income assist beginning and distressed farmers along with other farmers. But the impact of commodity programs is small relative to special needs.

Government credit institutions such as the Farmers Home Administration play a major role in determining who will be the next generation of farmers by their decisions regarding credit assistance at concessional terms. Some have proposed that the government take even more drastic measures such as buying up farmland and then making this farmland available to beginning farmers with a 40-year guaranteed lease. Some land trust funds also are being established for the purpose of attempting to make land available to beginning farmers who lack the necessary capital to purchase land.

One of the perhaps unintended consequences of some provisions of income tax laws is to encourage the purchase of land and the addition of improvements by nonfarm individuals and firms. This often makes land available to young farmers. While assisting beginning operators, these tenant arrangements are not necessarily consistent with the traditional concept of the owner-operated family farm.

Conclusion

In short, commodity programs hold some promise but have many shortcomings as instruments to serve the alternative-agriculture agenda. The extent to which commodity programs or other special public programs are pursued to further this agenda will depend in part upon the priority given to the various items by the public at large, as expressed through the political process.

Other Approaches

Other approaches have been proposed but were not considered in this report. Several entail systematic interference with efficiency to reduce farm output and raise farm prices. One example is to slow farm productivity gains through sharp cutbacks in public resources to develop improved technology. Another example is a tax on fertilizer to reduce its use and, hence, farm output. A flaw in these and other proposals specifically to reduce farming efficiency is that they not only would fail to treat farm problems of instability and cash flow but would also raise domestic food costs and leave American farm products more vulnerable to competition from abroad.

Other options not treated herein include public

efforts to improve resource mobility, especially for the able persons in agriculture who are left behind in the competitive struggle. Programs of special education, training, worker relocation, employment information, and counseling may have merit in their own right and may cushion the impact of jobs lost because of technological change, reduction of barriers to food imports into the United States, or other reasons. Such programs again do not address problems of farming instability and cash flow.

References

Avant, Bob, S. Fuller, Bruce Gardner, Ron Griffin, Ron Kay, Ronald D. Lacewell, Larry Makus, S. Masud, James Richardson, C. Robert Taylor, and T. J. Taylor. 1981. The production and sale of gasohol in Texas. Bulletin B-1353. College Station: Texas Agricultural Experiment Station, Texas A & M University.

Bredahl, Maury E., William H. Meyers, and Keith J. Collins. 1979. The elasticity of foreign demand for U.S. agricultural products: The importance of the price transmission elasticity." American Journal of Agricultural Economics 61:58-63.

Carley, Dale H. 1983. Tobacco programs affecting tobacco growers. Journal of Agribusiness 1:31-34.

Cropp, Robert A., and Hugh L. Cook. 1976. Advertising and promoting dairy products. Agri-Business and Market Information. Madison: University of Wisconsin Cooperative Extension Service.

Farm Income Protection Insurance Task Force. 1983. Farm Income Protection Insurance: A Report to the United States Congress. Washington, D.C.: U.S. Department of Agriculture.

Gardner, Bruce L. 1981. The Governing of Agriculture. Lawrence: The Regents Press of Kansas.

Hillman, Jimmye, Anne E. Peck, and Andrew Schmitz. 1978. International trade arrangements. Pp. 59-73. *In* Gail McClure and Sharon Farsht (Eds.). Speaking of Trade: Its Effect on Agriculture. Special Report No. 72. St. Paul: Agricultural Extension Service, University of Minnesota.

Johnson, D. Gale. 1981. Agricultural policy alternatives for the 1980s. Pp. 183-209. *In* D. Gale Johnson (Ed.). Food and Agricultural Policy for the 1980s. Washington, D.C.: American Enterprise Institute.

Johnson, James D., Richard W. Rizzi, Sara D. Short, and R. Thomas Fulton. 1982. Provisions of the Agriculture and Food Act of 1981. Agricultural Economic Report No. 483. Washington, D.C.: Economic Research Service, U.S. Department of Agriculture.

Johnson, Paul. 1977. The elasticity of foreign demand for U.S. agricultural products. American Journal of Agricultural Economics 59:619-627.

Knutson, Ronald D., J. B. Penn, and William T. Boehm. 1983. Agricultural and Food Policy. Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

Krishna, Raj. 1982. Some aspects of agricultural growth, price policy, and equity in developing countries. Food Research Institute Studies 18:219-260.

Lane, Sylvia. 1978. Food distribution and food stamp program effects on food consumption and nutritional 'achievement' of low income persons in Kern County, California. American Journal of Agricultural Economics 60:108-116.

Martin, Marshall A. 1977. Cost of production: An appropriate guide for setting target prices and loan rates? EC-462. West Lafayette, Indiana: Cooperative Extension Service, Purdue University.

Miller, Bill R. 1983. Price support and supply management policy for peanuts. Journal of Agribusiness 1:27-30.

Osborn, James E., George E. Allen, Wade H. Andrews, Jon F. Bartholic, John C. Buckhouse, Stanley A. Changnon, Wayne L. Decker, Norman A. Evans, Albert B. Frank, B. Delworth Gardner, Robert M. Hagan, Allan Halderman, Marvin E. Jensen, E. T. Kanemasu, Joseph J. Molnar, Stephen Rawlins, John A. Replogle, J. R. Runkles, Richard Schoney, James L. Shupe, Henry J. Vaux, Jr., and Daniel Wiersma. 1982. Water use in agriculture: Now and for the future. Report No. 95. Ames, Iowa: Council for Agricultural Council and Technology.

Pasour, E. C., Jr. 1980. Cost of production: A defensible basis for agricultural price supports? American Journal of Agricultural Economics 62:244-248.

Ray, Daryll E., and James W. Richardson. 1978. Detailed description of POLYSIM. Technical Bulletin No. T-151. Stillwater: Agricultural Experiment Station, Oklahoma State University.

Robinson, K. L. 1975. Unstable farm prices: Economic consequences and policy options. American Journal of Agricultural Economics 57:769-777.

Schuh, G. Edward. 1981. U.S. agriculture in an interdependent world economy. Pp. 157-182. *In* D. Gale Johnson (Ed.). Food and Agriculture Policy for the 1980s. Washington, D.C.: American Enterprise Institute.

Spitze, R.G.F., and Marshall A. Martin (Eds.). 1980. Analysis of food and agricultural policies for the eighties. North Central Regional Publication No. 271 and Illinois Agricultural Experiment Station Bulletin 764. Urbana: University of Illinois.

Spitze, Robert G. F., Daryll E. Ray, Allen S. Walter, and Jerry G. West. 1980. Public Agricultural-Food Policies and Small Farms. Paper I, NRC Small Farms Project. Washington, D.C.: National Rural Center.

Stovall, John G., and Dale Hoover. 1979. An overview of the cost of production -- Uses, concepts, problems, and issues. Pp. 3-11. *In* Estimating agricultural costs of production. Workshop Proceedings. Report No. 56. Washington, D.C.: Economics, Statistics, and Cooperatives Service, U.S. Department of Agriculture.

Swerling, Boris C. 1961. Positive policies for American agriculture. Pp. 310-322. *In* Goals and Values in Agricultural Policy. Ames: Iowa State University Press.

Thompson, S., and D. Eiler. 1975. Producer returns from increased milk advertising. American Journal of Agricultural Economics 57:505-508.

Tosterud, Robert, and Dale Jahr. 1983. The Changing Economics of Agriculture: Challenge and Preparation for the 1980's. A staff study prepared for the use of the Subcommittee on Agriculture and Transportation of the Joint Economic Committee, 97th Congress of the United States, 2nd Session. Washington, D.C.: U.S. Government Printing Office.

Tweeten, Luther. 1967. The demand for U.S. farm output. Food Research Institute Studies 7:343-369.

Tweeten, Luther. 1977. Agricultural policy: A review of legislation, programs and policy. Pp. 29-58. *In* Food and Agricultural Policy. Washington, D.C.: American Enterprise Institute.

Tweeten, Luther. 1979. Foundations of Farm Policy. Lincoln: University of Nebraska Press.

Tweeten, Luther. 1981a. Commodity support programs -- Are they dated? Pp. 68-85. *In* Food and Agriculture Policies for the 1980s. Washington, D.C.: Chamber of Commerce of the United States.

Tweeten, Luther. 1981b. Farmland pricing and cash flow in an inflationary economy. Research Report P-811. Stillwater: Agricultural Experiment Station, Oklahoma State University.

Tweeten, Luther. 1983a. Excess farm capacity: Permanent or

transitory? Pp. 35-49. *In* Proceedings of the National Agricultural Policy Symposium held in Kansas City, Missouri, March 1983. Columbia: Department of Agricultural Economics, University of Missouri. In press.

Tweeten, Luther. 1983b. Impact of federal monetary-fiscal policy on farm structure. Southern Journal of Agricultural Economics 15:61-68.

Tweeten, Luther, and C. Leroy Quance. 1969. Positivistic measures of aggregate supply elasticities: Some new approaches. American Journal of Agricultural Economics 51:342-351.

U.S. Department of Agriculture. 1981. A Time to Choose. Washington, D.C.: Office of the Secretary, U.S. Department of Agriculture.

U.S. Department of Agriculture. 1982a. Economic indicators of the farm sector: Income and balance sheet statistics, 1981. ECIFS 1-1. Washington, D.C.: U.S. Government Printing Office.

U.S. Department of Agriculture. 1982b. Agricultural Prices. (Monthly reports.) Washington, D.C.: U.S. Department of Agriculture, Statistical Reporting Service, Crop Reporting Board.

U.S. Department of Agriculture. 1983a. An Initial Assessment of the Payment-in-Kind Program. Washington, D.C.: U.S. Department of Agriculture, Economic Research Service.

U.S. Department of Agriculture. 1983b. Agricultural Outlook, January/February issue. Washington, D.C.: U.S. Department of Agriculture, Economic Research Service.

Ward, R. 1976. Measuring Advertising Decay. Journal of Advisory Research 16:37-41.

Webb, A., and E. Winston. 1981. An overview of bilateral trade agreements for agricultural commodities in international markets. Staff Report No. AG ESS 810616. Washington, D.C.: U.S. Department of Agriculture, Economics and Statistics Service.

Wetmore, John, Martin Abel, Elmer Learn, and Willard Cochrane. 1959. Policies for expanding demand for farm food programs. Technical Bulletin 231. Minneapolis: Agricultural Experiment Station, University of Minnesota.

Appendix

Critical Evaluation of Joint Economic Committee Staff Report

"The Changing Economics of Agriculture" (Tosterud and Jahr, 1983) is a valuable and important report. Several conclusions from the report were included in this task force report. Extensive data included in the staff report provide a useful descriptive summary. The staff report, however, is either incorrect or incomplete in a few respects. Comments are made here on six of these.

1. Reviewing trends since publication 25 years earlier of the benchmark *Policy for Commercial Agriculture*, the report notes that "In 1981, real farm income fell below the depressed 1957 level and dropped to the lowest it has been since the Great Depression. What has gone wrong?" Many persons displaced from agriculture have experienced economic hardships which cannot be overlooked, but it is also useful to ask, "What has gone right?" Disposable personal income per capita of farm people averaged less than half that of nonfarm people in 1957 but averaged nearly 90 percent that of nonfarm people in 1981 (U.S. Department of Agriculture, 1982a, p. 88). Such progress is attributed to several sources. Farm production resources produced two-thirds more output per unit in 1981 than in 1957. Aggregate real net farm income was indeed lower in 1981 than in 1957, but it was divided among only one-third as many people in 1981 as in 1957, thanks in large part to an extended agricultural business base. On the average, farmers producing one-half of all farm output covered all resource costs of production in 1981 even though farm prices averaged only 61 percent of 1910-1914 parity in 1981.

2. The report states that in contrast to former years "the terms of loans today [to farms and industries supporting farms] largely reflect market conditions. Also, price supports for commodities are not at levels that reflect adequate rates of return." Although these statements may be essentially correct, they raise basic questions about the appropriate role of government in agriculture. Federal lending under terms more favorable than obtainable in the market has sometimes contributed to excessive production and lower product prices and has caused many farmers to become overextended financially.

Commodity price supports for the most part have been set to provide security against severe price declines rather than to replace the market. Price supports are not meant to encourage production or to ensure that all farmers make a profit. Such supports can be no more than a cushion if rigidities in the farming economy are to be avoided that would severely interfere with economic efficiency and ability of our farming industry to compete in international markets — a need emphasized elsewhere in the staff report.

3. The report states that "in response to higher costs, farmers have increased production, causing a greater surplus which in turn has resulted in even lower prices." Farmers produce less in response to higher costs and lower product prices, although full adjustments may require months and sometimes years (see Tweeten and Quance, 1969).

4. "The value of land appears to be greater than its

production value, explaining in part the historical low rates of return" according to the staff report. Ratios of farmland rents (as measures of land earning capacity) to land prices have shown no strong upward or downward trend over time. Evidence suggests that farmland is not overpriced at present on the basis of reasonable expectations of future earning capacity in agricultural use only. What is often perceived as a problem of chronic low return is the normal outcome of quite rational participants in an efficient real estate market when land earnings are expected to keep pace with inflation (see Tweeten, 1981b).

5. The report states that the Economic Recovery Tax Act of 1981 "... allows farmers to recover capital outlays over a shorter period of time which will result in greater incentives for investment in the farm sector, and substantially reduce estate and gift taxes which will facilitate the transfer of farms from one generation to another." By reducing the cost of capital relative to labor, the Tax Act encourages purchase of capital to replace labor. The result may be larger and fewer farms. The estate and gift tax provisions of the Act may result also in greater concentration of wealth among fewer farmers and reduce opportunities for young, aspiring owner-operators to get a start on a family farm.

6. Quoting further from the report, "Federal farm policies and programs over the past 25 years have attempted to achieve economic stability by encouraging the exit of resources out of agriculture." Federal farm commodity support programs have had little net impact on the exit of resources (see Spitze et al., 1980). The intended purpose of policies and programs has been to raise farm income and reduce its variability rather than to encourage exit of resources. Within the past 25 years, however, major shifts have occurred in the resources used in agricultural production. The labor resource has decreased, and off-farm input resources have increased, but the land resource has remained approximately constant.

The Joint Economic Committee report leaves the impression that agriculture by its very nature is chronically prone to overproduction and low returns on resources. Rather, as stated earlier in the report of this task force, the most serious farm problems are instability and cash flow rather than chronic overproduction. A parity ratio averaging well above the current ratio would eventually leave the farming economy troubled if instability and high inflation or high real interest rates remained.

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